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THE SIGNIFICANCE OF FATS IN THE DIET.

BY

ERNEST H. STARLING, C.M.G., M.D., F.R.S.,

JODRELL PROFESSOR OF PHYSIOLOGY, UNIVERSITY COLLEGE, LONDON.

From the beginning of the science of dietetics it has been recognized that a diet must include representatives of the three classes of foodstuffs—proteins, carbohydrates, and fats. An enormous amount of work and controversy has been devoted to the questions of the minimum and optimum requirements of the average man for proteins, and the influence of the quality of proteins. Since, however, every mixed diet of sufficient energy value contains more than the minimum amount of proteins necessary for the maintenance of health, the question is more academic than practical, and does not, therefore, present itself in considering the requirements of the individual man or of a nation. With regard to carbohydrates, it has been established that a certain quantity is essential. Sugar is the form in which carbohydrates are put into currency in the system, and a certain amount of this substance appears to be necessary for the normal functioning of the cells of the body. In the absence of carbohydrates the proteins are attacked and carbohydrate is split off from the protein molecule, or synthetized from the oxy-fatty acids resulting from the primary decomposition of the amino acids. A diet in which fat takes the whole place of carbohydrates produces acidosis, the oxidation of the fats being defective in the absence of carbohydrates.

The question as to the requirements of the body for fats and the significance of these substances in ordinary metabolism has, however, been practically neglected, and it has needed the restriction of food supplies throughout Europe, which is the immediate consequence of the war, to bring into prominence the great practical importance of the fat supply. Indeed, after having provided the necessary calories for the maintenance of a population the only important question remaining is the provision of a proper amount of fat. Is it possible to arrive at a minimum figure for fat, or even a minimum desirable amount, which science can lay down for the guidance of those responsible for the feeding of the nation?

Scientific evidence for the indispensability of fat in the diet is indeed very scanty. We have been accustomed to believe that fat and carbohydrate are convertible isodynamically. We know that carbohydrate can be easily converted into fat in the body, and is the main source of fat in the raising of animals for food. But in the case of carbohydrates this isodynamy is limited. Some carbohydrate is necessary for the health of man unless he is to be reduced to partake of an abnormally large diet of protein for the sake of obtaining the necessary carbohydrate (as, for example, among the Esquimaux).

Is there any evidence of a similar limit in the case of fat? For the adult man we have a mass experiment in Germany, where the population has suffered for the last two years or more from a marked shortage of fat, which has been reduced in the towns to about 20 grams a head a day. In this case certain diseases have occurred which have been ascribed to the deficiency in fat and have been cured by increasing the fat in the diet. These morbid conditions are marked by a generalized dropsy. It has long been known that a sudden change from a mainly fat to a mainly carbohydrate diet causes an immediate increase in weight, due not to the putting on of fat but to the retention of water in the body, and the dropsical condition occurring in Germany would seem to be due to the same factor in an exaggerated form. Similar cases occurred in some asylums in this country during the mild fat shortage from which we suffered during the early part of this year. The pathological effects of fat shortage are especially marked when there is a reduction of the total food supply, so that there is general deprivation of food as well as the special deprivation of fat. According to Hindhede, it is possible to maintain health, in the almost entire absence of fat, on a full diet in which potatoes and green foods are predominant features. But a deficiency of fat in the diet will almost always be associated with and due to a shortage of food supplies generally.

In babies rickets is associated by some with deficiency of fat in the diet. In this case a more important factor seems, however, to be an absence of some food hormone or vitamine associated with butter, cod liver oil, and many other kinds of fat, and, according to Mellanby, it cannot be cured except by giving a fat containing the substances in question.

The absolute physiological need of the cells of the body for fat supplied as such seems, therefore, to be unproven in view of the capacity of the body for manufacturing fat out of carbohydrates given in excess of the physiological requirements for energy. This conclusion, however, does not mean that fat is unnecessary in a normal diet; several other points have to be taken into consideration.

In the first place, fat is highly assimilable and is almost entirely absorbed from the alimentary canal. But it is digested and absorbed more slowly than carbohydrate. Whereas the greater part of the latter is absorbed three hours after food has been taken, the most intense absorption of fat occurs between five and six hours after a meal. On this account a meal lacking in fat is deficient in staying power. Man is unaccustomed to working with the alimentary canal entirely at rest. When digestion of the last meal is finished hunger recurs and affects the efficiency of work. Thus Major Ewing relates how on a railway job in Canada the Italian workmen were found to become inefficient at about 11 o'clock in the morning. These workmen were only spending 7 to 8 dollars for food at the canteen as against 15 dollars expended by the Canadian workmen. The chief difference in the diet conditioned by this economy was in the meat. The company then insisted on the Italians spending 15 dollars a month. With the extra money they bought fat beef, and it was then found that their work was entirely satisfactory. It may be objected that in this case it was the lean of meat, that is, the extra protein rather than the fat, which was responsible for the difference; but examination of the dietaries of very heavy workers—for example, lumbermen in Sweden and in Canada, who were consuming food with a calorie value of 4,000 to 8,000 calories a day—shows that this great increase in food related not to the protein but to the fat. The Canadian lumbermen live largely on fat pork and beans. In this country, too, there have been complaints from the Welsh miners during the first half of this year that the food had not enabled them to work their normal shifts. They are used to taking with them to their work pies made of fat pastry with a little meat, and it was impossible to make the pastry in consequence of the absence of fat. Premature hunger was also a universal experience in this country during the first five months of this year.

In the second place, the bulk of food must be of considerable importance, especially when the total food required by the energy needs of the body is very large. Weight for weight fat has more than double the calorie value of starch and sugar. But the difference in bulk is still greater, since fat is taken without admixture in a pure form, whereas the other foods are all mixed with a considerable proportion of water. The proteins in meat only form 15 to 20 per cent. of the total bulk. Starch cannot be taken except mixed with large quantities of saliva. When ordinarily cooked it is swollen up with probably five to ten times its amount of water. Even after absorption the same necessity for increasing the bulk of carbohydrates with water persists. Even glycogen does not occur to a larger amount in the liver than 12 per cent., a figure which may be largely surpassed by fat, and in adipose tissue there may be as much as 80 per cent. of fat. When carbohydrate goes into the circulation it is changed into sugar, and as sugar it needs twenty times its weight of water to carry it. It acts, therefore, to some extent in the same way as common salt. Just as an extensive diet of salt may produce dropsy, so a diet of carbohydrate increases in the first place the water content of the body, and this factor, when associated with inanition and fat shortage, may itself produce actual dropsy.

The question of bulk is probably one of the most important factors in determining the need for fat. The human alimentary canal has been developed so as to cope with a diet in which 20 to 25 per cent. of the energy is presented in the form of fat. In order to get the same energy from carbohydrates the alimentary canal

would have to be much larger. Theoretically, then, the absence of fat can be made up by an increased supply of carbohydrates. But this can only be carried out in a certain number of individuals and under certain conditions. The ordinary individual deprived of fat diminishes his total intake of food and exists on a lower metabolic level. It is a notable fact that during the recent shortage of fat in this country there was no appreciable increase in the consumption of cereals. It was easier to live on the stored-up fat of the body than to adopt a stuffing process with carbohydrates.

In the third place, it seems that carbohydrates are more subject to fermentative changes in the intestines than fats. Overloading the intestines with carbohydrates in many individuals leads to abnormal fermentation, the production of gases, and general discomfort. We may conclude, then, that fat is an essential ingredient of the diet of man, and that there must be some relation between the quantity of fat necessary and the total energy requirements of the individual. So great are the powers of adaptation in the animal body and so retarded are the effects of a fat shortage that ordinary laboratory experiments of short duration do not seem suitable for deciding the question as to the relation of the fat ration to the energy requirements of the body. We shall arrive at more reliable results by the statistical method, that is, by studying the proportion of fat to the whole diet taken by a number of individuals of different energy requirements, living under conditions in which they can choose the quality of their diet.

It is necessary, however, to recognize the limitations of this method. It tells us how much fat a man eats ordinarily and how much he can take under certain conditions. It gives us no information as to the minimum fat requirements, nor can we assert that the proportions which are habitual are necessarily the optimum proportions. It will, however, give us some clue in arriving at what we may call the *minimum desirable ration* of fat, and from the practical standpoint—that is, as guidance for those concerned in controlling the food supplies of the country—it is this minimum desirable ration which is of chief importance.

Food Requirements of the Child.

In the breast-nourished infant the proportion of food energy represented by the fat of the diet is given by the composition of human milk. Thus, in some estimates by E. Feer, quoted by Bunge, a boy 30 weeks old took 951 grams of milk daily. This contained:

Proteins	15.2 grams	=	62.3 calories
Fat	32.3 ,,	=	300.4 ,,
Sugar	58.0 ,,	=	237.8 ,,
Ash	1.9 ,,		—
Total calories			600.5

The suckling thus takes 50 per cent. of its nourishment in the form of fat. At weaning we should expect the proportion of fat to diminish considerably, since the food of the young child is composed chiefly by adding foods rich in carbohydrates to milk. It is not easy, however, to find any definite and ideal proportion between the fat and the total diet in young children up to 6 or 8 years of age. The following figures are given by Camerer as the average diet of children from 2 to 14 years of age, in relation to body weight:

TABLE I.—*Food of Children per Body Weight.*

Age.	Fat.	Fat Calories.	Total Calories.	Percentage of Total Calories.
2—4	3.1	28.8	75 3	38
5—7 (boys) ...	1.9	17.9	69.0	25
7—10 (boys) ...	1.3	12.1	59.2	20
11—14 (boys) ...	1.4	13.0	51.4	25

If we may regard these diets as adequate we may perhaps conclude that, after weaning, the proportion of energy yielded by fat drops to about 35 per cent. during the first five years of life, and then drops further to about 25 per cent. during the rest of childhood. It would be interesting to see how far these conclusions are borne out by other dietetic studies on children. A series of diets for young children by Steffen, quoted by Pfaundler and Schlossmann, give from 41 per cent. to 50 per cent. of fat, but in this case each child receives a litre of milk a day, besides one egg and some meat. In view of the universal distaste of children for fat and the difficulty which has been found in persuading them to take all the milk which is available for them in well-to-do families, I am inclined to think that this figure is too high, and that the figures deduced above from Camerer's results represent more nearly the usual diet compatible with the maintenance of health and growth. It seems very probable that the great value of milk in the child's dietary is due in the first place to the presence of the growth hormones in the fat of milk, and to the high biological value of the milk protein. Given a sufficiency of milk, there seems no reason why the child's natural taste for carbohydrates should not be indulged in preference to forcing upon it an excess of fats.

Fat Requirements of the Adult.

Some light is thrown upon the proportion of fat in the adult diet by the tables given by Tigerstedt in Nagel's *Handbuch*, which represent the results of the analysis of diets in a number of individuals of different occupations and requirements.

TABLE II.

	Continental.					American.			
	Total Calories.	Total Fat. Grams.	Calories in Fat.	Percentage Fat Calories of Total Calories.		Total Calories.	Total Fat. Grams.	Calories in Fat.	Percentage Fat Calories of Total Calories.
1	2229	44	409.2	18.4	1	2135	81	753.3	35.3
2	2889	60	558.0	19.3	2	2779	108	1006.4	36.2
3	3222	85	790.5	24.5	3	3262	125	1162.5	35.6
4	3702	93	864.9	23.4	4	3738	137	1274.1	34.0
5	4252	135	1255 5	29.5	5	4180	158	1469.4	35.2
6	4752	106	985.8	20.7	6	4692	195	1813.5	38.7
7	6037	156	1450.8	24.0	7	5511	225	2185.5	39.7

The first half of Table II is taken from analyses of European observers. The individuals are sorted into seven classes according to the average number of total calories taken per day. In these individuals the proportion of the total energy represented by fat varied from 18.4 per cent. to 29 per cent. The percentage shows a tendency to increase with increase in the total calories.

In the second half of Table II is given a similar series of observations by American observers. It will be noted that in this series the proportion of energy furnished by the fat is throughout much larger than in the European series, varying from 34 per cent. to 39.4 per cent. Since the individuals who were subjected to observation could be regarded as normal in both sets of observations, the difference between the two series must be ascribed to the greater abundance of food of animal origin in the American continent, and is evidence at any rate that, given a sufficient supply of fats, a man with free choice of diets will increase his consumption of this foodstuff until it will give over one-third of the total energy of his food. But in searching for the desirable minimum ration we are justified in using the first series, and we shall probably not be far wrong in assuming that in a normal diet the fat should account for 20 per cent. to 25 per cent. of the energy of the whole diet.

The Inter-Allied Scientific Food Commission laid down 75 grams of fat a day as the minimum desirable ration for the average man working eight hours a day and utilizing 3,000 calories, or, allowing for waste, taking 3,300 calories in food as purchased. This figure is midway between 20 per cent. and 25 per cent.—20 per cent. would give a daily ration of 70 grams of fat, 25 per cent. a ration of 88 grams of fat. For purposes of comparison we may give here (Table III) the fat content of various standard

TABLE III.

	Protein.	Fat.	Carbo-hydrate	Total Calories.	Fat Cals. per cent. of Total Cals.
	Grm.	Grm.	Grm.		
VOIT:					
Medium work ...	118	56*	500	3,055	17 0
Hard work	145	100	500	3,574	26.0
RUBNER:					
Light work	123	46	377	2,445	17.5
Medium work ...	127	52	509	2,868	17 0
Hard work	165	70	565	3,362	19.4
ROYAL SOCIETY:					
Food War Committee	100	100	500	3,400	27.4

* The fat in this diet is regarded by Voit as minimal.

TABLE IV.—*Food Consumption per Head per Day in European Cities, based on Municipal Statistics of Gross Consumption.* (Rubner, quoted by Lusk.)

City.	Protein.	Fat.	Carbo-hydrate.	Total Calories.	Fat Cals. per cent. of Total Cals.
	Grm.	Grm.	Grm.		
Königsberg	84	31	414	2,394	12.0
Munich...	96	65	492	3,014	20.4
Paris	98	64	465	2,903	20.5
London...	98	60	416	2,665	21.0

This ratio of fat energy to total energy, 20 per cent. to 25 per cent., should only be applied to the diet of the ordinary individual—that is, the sedentary man, the woman, and the ordinary labourer. When the energy requirements of the individual become excessive—for example, 4,000 calories and more per day—we find that in almost all cases the proportion borne by the fat energy to the total energy is considerably larger than 25 per cent.

Table V gives the diet of woodcutters in the winter in northern Sweden. The total calories varies from 4,600 to 8,500 a day. The fat calories in each case form thus over

TABLE V.—*Winter Diet of Woodcutters in Northern Sweden, and of American Lumbermen.*

	Total Calories.	Total Fat.	Calories in Fat.	Percentage Cals of Total Cals.
		Grm.		
Swedish woodcutters:				
5 and 6...	4,606	210	1953.0	42.4
7a	5.500	251	2334.3	42.4
7b	6.502	296	2752.8	42 3
7c	7 487	349	3245 7	43.4
7d	8.506	390	3627 0	42.6
American lumbermen..	8,083	388	3608 0	45.0

42 per cent. of the total calories. In American lumbermen, with a total intake of over 8,000 calories a day, the fat energy amounted to 45 per cent. of the total energy. This is, however, what one would expect. If a man is called upon for an extreme expenditure of energy, either in performance of work or in order to maintain his body temperature in excessive cold, he must take more food; and since his alimentary tract does not constantly increase in extent in proportion to the augmented demand upon it, it is necessary that the large increase in the food be taken in the most concentrated form—namely, as fat. The preponderatingly fat diet of the arctic and antarctic regions is, therefore, dictated not only by the nature of the food available in these regions, but also by the size of the human alimentary canal in relation to the energy demands of the body as a whole.

CONCLUSIONS.

So far as the evidence goes, and bearing in mind the limitations of the methods employed, we are, I think, justified in formulating the following conclusions:

1. Strictly speaking, there is no evidence for an absolute physiological minimum of fat in the diet, provided that the calorie value of the whole diet is sufficient to meet the total energy needs of the body, and to provide a surplus for fat formation in the body.

2. Practically a certain amount of fat is necessary in the diet, the alimentary canal of man having been developed to deal with a diet in which a considerable proportion of the energy is presented in the shape of fat.

3. In the diet of the infant at the breast fat gives over 50 per cent. of the total energy.

4. After weaning and for the next few years of life, up to 6 years of age, the main source of fat in the diet should be milk and butter. This fat should probably represent about 35 per cent. of the total energy of the diet.

5. From 6 years onwards the fat of the diet should represent from 20 per cent. to 25 per cent. of the total energy, provided that there are no excessive demands on the energy output of the body. This proportion can be increased considerably—for example, up to 35 per cent.—without any deleterious effects. The proportion of 20 per cent. may be regarded as a minimum. Any increase upon this would be determined by the supplies available, it being borne in mind that fat is not only the most concentrated but also an expensive form of energy to the body. Animal fat is probably at least three times as expensive a source of energy as carbohydrates derived from vegetable sources.

6. As soon as the demands of the body become excessive—for example, 3,600 calories to 5,000 calories or more—it is unprofitable to attempt to meet the increased demands by means of carbohydrates alone, the limiting factor being probably the size and digestive powers of the alimentary tract. The proportion of fat in the diet in these circumstances should, therefore, be increased up to 30 or 40 per cent. It is a question requiring further consideration whether the energy requirements of a rapidly growing, active lad should be met in the same way by an increased proportion of fat in the diet.

These conclusions may be interpreted in terms of grams of fat for the different classes of the community in accordance with their energy requirements as follows, it being borne in mind (1) that the fat figures represent what I have called the minimum desirable ration, (2) that, given an otherwise adequate diet, these figures can be diminished without serious detriment to the health of the individual, though probably not without inconvenience and diminution of efficiency, and (3) that they can be considerably augmented without interfering with efficiency or with health.

In the following table the total calories are those proposed by Lusk and adopted by the Inter-Allied Scientific Food Commission. The gross figures refer to calorie value of food as purchased, and allow for a total wastage of 10 per cent.

TABLE VI.

Age in Years.	Total Calories per Day.		Fat in Grams.	Fat Calories per Cent. of Total.
	Gross.	Net.		
0-6	1,650	1,500	62	35
6-10	2,310	2,100	62	25
10-13	2,750	2,500	74	25
13-20—				
Males	3,300	3,000	88	25
Females	2,750	2,5 0	74	25
Adult average bodily workers:				
Males	3,30)	3,000	70-88	20-25
Females	2,750	2,500	60-74	20-25
Adult sedentary workers:				
Males	2.750	2,500	60-74	20-25
Females	2,200	2,000	47-60	20-25
Adult very heavy bodily workers*	3,900 to 5,000		12 -160	30

* For example, lumbermen, puddlers, etc.

TREATMENT IN THE TOXAEMIAS OF PREGNANCY.

BY

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THE exact pathology of the various toxaemias of pregnancy, although so searchingly investigated of recent years, is still obscure, and for this reason alone treatment can hardly be expected to be perfect in the present state of knowledge; yet it is essential that these conditions should be thoroughly met, as none in all obstetrics are more serious, either immediately or remotely. In this paper I wish to refer to the treatment of only the fully developed conditions—hyperemesis, albuminuria, eclampsia, and the like—but it must constantly be kept in mind that this is only second best, no matter how successful the result may be. Best of all is prevention. This view is becoming daily more generally accepted by the profession, and even by the lay public, and it is reasonable to expect a lesser incidence of these conditions in the future.

For various reasons, however, these cases are often not presented for treatment until the toxaemia is fully developed, and then the most active measures are required to successfully combat the disease. Treatment must always rest on the basis that the woman is pregnant, and that therefore, if the pregnancy be ended, the origin of the toxaemia will be removed. If the pregnancy is to be terminated, this must be done sufficiently early, and not put off until the patient be in danger of losing her life.

Another point arising out of the previous considerations is that the treatment of these various toxaemias may, and indeed must, run on similar lines, the variations being minor and according to special circumstances. This is especially true because at present it is quite uncertain how far these various conditions are separate entities or merely manifestations, different in degree or character, of the one disease.

If we classify methods of treatment as on the one hand palliative and on the other radical and operative, it will be seen that the individual variations of treatment will occur mainly in the palliative classes, the radical or operative measures practically resolving themselves into the emptying of the uterus.

In eclampsia sedatives are urgently indicated on account of the fits. On this all are agreed, but not on the individual sedative or dosage. Morphine, the most potent of these drugs, is probably the best if properly used, although Bumm and Jardine are averse to it; but Williams, Tweedy, Galabin, Eden, and especially Stroganoff, strongly recommend it. Galabin gave no more than 2 grains in twenty-four hours, while Tweedy administered it until the respirations came down to seven per minute. A satisfactory and safe routine in my experience is to give ¼ gr. or ½ gr. at first, to repeat, if necessary, the smaller dose in two hours, and, again if necessary, after another two hours, but not to give more than three doses unless some special indication be present. Usually a most satisfactory result will be obtained in this way; if not, more active measures, probably operative, will be called for. The reasons put forward for its use are that it decreases metabolism and so puts the metabolic sources out of action; that it decreases cerebral irritability and so lessens the fits and the tendency to them; and that it lowers blood pressure while not depressing the heart. Its impairment of excretion and its damaging effect on kidney tissue are held by some to be contraindications to its use, but if it be used with care as above described, and only for a limited period, I have never seen any harmful results accrue from its administration.

Chloroform is used by many, and in its proper place is certainly of much value. Tweedy and Ward[1] are rather averse to it; they find a similarity between hepatic lesions in eclampsia and those after prolonged administration of chloroform, and the latter likens its administration to the indiscriminate giving of antipyretics in a case of pyrexia without looking to the cause. Its continued use over a lengthened period is much to be deprecated. I have no doubt as to its deleterious effects on the kidneys under these circumstances; but as an adjuvant to operative treatment it still remains unequalled.

Chloral hydrate and potassium bromide are of more use for the restlessness between fits than for actual convulsions. Stroganoff gives them alternately with morphine, and with this method a death-rate of only 6 per cent. is recorded. Personally I have never seen from these drugs alone any real sedative effect in eclampsia.

Very different is paraldehyde, which almost always I have found of much sedative value and absolutely safe. Two drachms given by the rectum, with repetition of half that dose every two hours when necessary, is usually equal to the largest dose of morphine in this respect, and without any of its contraindications. In my opinion the valuable sedative and safe properties of this drug are not sufficiently appreciated.

But apart altogether from drugs, much attention must be given to the general surroundings of the patient. A single and complete examination should be made at first, and then the patient should be left alone as much as possible, as it is obvious that so strong a peripheral stimulus as a bimanual pelvic examination may very easily set up fresh fits.

In general terms, then, this side of treatment will resolve itself into the exclusion of every agent that can act unduly on the tactile, aural, visual, or other receptor systems, and this will include good nursing, a suitably warmed and darkened room, with constant and experienced attention. These conditions are obtained to best advantage in an upper class private house; they obviously cannot be obtained in the slums, while in hospital the bustle of a labour ward is not conducive to rest and peace.

In recent years sedative treatment has been perfected by Stroganoff of Petrograd. The patient is put to bed, the head of the bed being elevated, in a quiet and darkened room; chloroform is given lightly and only actually during fits; morphine and chloral and bromide are given alternatively as sedatives. The patient lies on one side for one hour and is then turned for another hour on to the other side so as to avoid pulmonary congestion, while the head is hung over the end of the bed so as to allow free escape of all mucus from the chest. The stomach and bowel are washed out under chloroform and the patient then left alone as much as possible.

With such treatment Stroganoff reports the remarkably low death-rate of 5 per cent. E. Roth, of Dresden, treated fifty cases in this way and reported 8 per cent. of deaths, as compared with 19 per cent. by other methods of treatment. The fetal mortality was 18.6 per cent., as against 5.5 per cent. by other methods. These figures would appear to speak strongly in favour of sedative expectancy.

On account of the frequent haemorrhages and the heightened blood pressure found in this condition circulatory sedatives are much used by some authorities. Zinke[2] advocates veratrum viride; he gives 2 minims of the tincture subcutaneously and repeats it hourly until the pulse falls to 60. The injection is repeated on any rise of the pulse-rate above that. He reports a maternal death-rate of 15.38 per cent. and a fetal death-rate of 53.38 per cent. In a series of cases not so treated he quotes death-rates of 34 and 45 per cent. respectively; judging from this alone the treatment would seem to improve the mother's chances and to prejudice those of the fetus.

The drug is dangerous, however, and is better omitted; if it be used at all frequent small doses should be employed so that its action shall be controlled as much as possible.

The action of the nitrites is too evanescent to be of much value in this connexion. Amyl hydrate is much vaunted as a vaso-dilator by Härle, Marash, Naab, Kobelt and some others, all of whom report improved results after its exhibition. Personally I have never used vaso-dilators; the only possible part they can play in really efficient treatment is so small as to be of no practical value.

But in the other type of toxaemia, manifested especially by such a condition as hyperemesis gravidarum, attention must be directed primarily to the gastro-intestinal tract, since it is here that the causative toxin acts most strongly and evidently. In these cases, first of all, and in spite of the sickness, the stomach should be washed out; some recommend that one drachm of magnesium sulphate in solution should be left in the stomach after the last washing, but this will usually be found to set up fresh vomiting; it should be omitted as a routine, and used only in the rare cases in which the stomach will tolerate anything. The bowel must next be thoroughly washed out, and, as far as possible, kept clear, as this channel may have to be used for feeding purposes.

As regards diet, it may be necessary to withhold nourishment of any sort for a day or two, but usually rectal alimentation will be borne quite satisfactorily. The mere peptonizing of milk can hardly now be considered a sufficient procedure. Short and Bywaters[3] have pointed out, as the result of experiment, that proteins must be broken up, not merely to the peptone stage, but must be completely hydrolyzed to the amino-acid state before they can be absorbed by the bowel mucous membrane. Prolonged action of the enzyme powder is therefore necessary. The same observers find glucose well absorbed by the rectum and colon, but not so other food radicles.

These considerations are important when we remember how essential is nourishment to such patients, and how quickly they emaciate; they may, indeed, in a very short time sink so low as to be beyond any treatment.

In this condition we must always from the very first, and no matter how the case may be, keep induction of labour in mind; the tendency is too often to leave it until every palliative drug and method has been found wanting, by which time the patient is often fatally ill, and the death is regarded as the result of the operation, whereas it is due really to the failure to operate at the proper time.

Of drugs, the gastric sedatives—bismuth carbonate, tincture of opium, dilute hydrocyanic acid—have a most variable action; in some cases they are apparently without effect, while in others their action is quite magical; often, however, they appear merely to excite further vomiting. We cannot look to drugs for any real help in this disease. In my experience the gastric sedative most likely to prove effective is dilute hydrocyanic acid in 5 minim doses three times a day.

In all toxaemias elimination of fluids so as to remove the circulating toxins is safe and rational treatment.

I have referred to the washing out of stomach and bowel which should be done in every case of toxaemia in pregnancy: of purgatives (when they can be retained in hyperemesis) the hydragogues—magnesium sulphate 60 grains daily, or compound jalap powder 90 grains as required—are good, but for the reasons stated above we must rely mainly on enemata. In an unconscious eclamptic patient croton oil would suggest itself. I have tried it several times, but have found it unsatisfactory and useless. Jardine reports a case in which oedema glottidis followed its exhibition, and he is much opposed to its use.

Diaphoresis I have found of distinct benefit, and I have never seen the extreme collapse described by Tweedy. The hot pack, or, when it can be obtained, the hot air bath, are both quite safe if the pulse be carefully watched. Pilocarpine I have never dared to use, on account of its lowering and reducing action.

As the toxins are circulating in the blood, it is reasonable to suppose that by blood-letting a certain amount of toxin will be removed, and that if in addition fluid (for example, saline) be introduced in place of the abstracted blood, the remaining toxins will be diluted, while the kidneys will be washed clean of accumulated metabolic débris and stimulated to normal excretion.

All these hopes have been realized in practice, and this line of treatment has been of much value. Jardine, the foremost in this country in this direction, at first used sodium acetate, 40 grains to the pint of water, the solution being at a temperature of 104° F. He selected this salt on account of its diuretic action, but he and others now use normal saline, and with equally good results.

Where venesection has been performed (15 to 20 fl. oz. may safely be removed in a case of average severity) saline, 2 to 3 pints, may be introduced into the vein at the same operation, and it will be found that the distended veins in eclampsia facilitate this procedure; very different is the case with the collapsed veins which accompany the severe prostration of hyperemesis.

In the less urgent cases the saline may be administered by the rectum, and with admirable results; saline may thus be administered continuously. Generalized oedema is usually held to be a contraindication to transfusion, but in practice I have not found it so; however, if oedema of the lungs be present, as evidenced by the presence of dullness and râles at the bases, it is better to withhold saline, as this oedema may become aggravated and the patient be literally drowned in her own mucus.

The sudden and very temporary elevation of temperature sometimes seen after transfusion is usually of no moment practically; it has been attributed to the fluid used being at too high a temperature, but this explanation is quite insufficient to account for the great majority of cases.

Renal decapsulation, introduced by Edebohls and recommended also by De Bovis, Stoeckel, Sippel of Frankfurt, Lichtenstein of Leipzig, and others, I do not propose to consider at any length. It is a serious remedy; I have never found the need to employ it, and I can hardly see any justification for such a procedure. The death-rate is bound always to be high, and the operation has, quite properly, never become popular.

It is founded on an entirely theoretical basis—to relieve congestion of the organ—and I can see no object in such a severe manipulation when the induction of labour is almost certain to have an infinitely more beneficial effect. Any value attaching to Sellheim's[4] operation of amputation of the breasts—the supposed source of the causative toxin according to this observer—depends probably on the accompanying loss of blood, and cannot seriously be regarded as rational treatment.

The methods considered are all at least unsatisfactory. Mostly they are inefficient to cure. Emptying of the uterus, on the contrary, forms the bedrock of operative procedures in these toxaemias.

In general terms, then, the safe and logical obstetrical rule is to treat toxaemic cases of slight and moderate severity by these described palliative measures at first, but if no improvement shows within twenty-four hours, and much more if the condition become worse in spite of treatment, we must empty the uterus. When this line of treatment has been decided on the sooner the operation is proceeded with the better for the patient. We must entirely disregard the period of gestation and the question of fetal viability and consider only the interests of the mother. In severe cases the uterus should be emptied at once.

In pernicious vomiting Williams[5] lays stress on the ammonia coefficient of the urine, and urges that cases with a low coefficient are almost always hysterical, and should be treated as such, and induction of labour not performed. This is true as a generalization, but it must not be forgotten that such cases by prolonged starvation may develop a high ammonia coefficient. Again, cases of purely hysterical vomiting may die of inanition, and in such cases, everything else failing, induction of labour will be called for purely as treatment for the neurosis. These exceptions to the above rule must always be kept in mind.

As regards eclampsia, Bumm[6] quotes Seitz, who reports a death-rate of 6.5 per cent. with early delivery, 17.2 per cent. after later delivery, and 28.6 per cent. with purely expectant treatment. Bumm himself found a death-rate of 30 per cent. with expectant treatment, but since 1901 he has in every case delivered as soon as possible after the first fit, and now reports a mortality of 2 per cent.—truly an altered figure.

These views are supported by Zweifel, Horn, Jardine, Cameron, Munro Kerr, and Williams. Hermann, Ballantyne, and especially Stroganoff of Petrograd, still advocate expectant treatment and quote figures to support their beliefs. From a recent observation of almost forty cases of eclampsia I have no hesitation in recommending the emptying of the uterus after the first fit.

The method used will be governed by several factors, especially the urgency of the case and whether or no parturition is proceeding. In hyperemesis, which usually occurs long before term and not at parturition, the insertion of a bougie between membranes and uterine wall will usually be sufficient, the process being then completed normally and usually quite rapidly. If the cervix be tight or the process slow, moderate and intermittent cervical dilatation will usually answer.

In eclampsia at term parturition usually has set in and may be left to be completed, or if thought fit forceps may be applied to speed the process. But if forceps are used no undue force must be employed or unnecessary speed obtained, as a very severe perineal tear may result, which, as the patient is so likely to be a primipara, will very unfavourably influence her later obstetrical and gynaecological history. But if dilatation be slow (perhaps owing to a tight cervix) and the eclamptic condition is becoming worse, operative cervical dilatation is called for. It is wise to be very chary of sudden dilatation either by hand or by Harris's dilators; I have never failed to observe marked post-operative shock after these methods, and once I saw instant death during the procedure.

In my opinion, the best method is to make two or three incisions into the cervix, as Dührssen advises. This immediately produces full dilatation, and also allows a loss of blood, which is itself of benefit. The incisions should always be stitched up when the intrauterine manipulation is completed. Any necessary intrauterine manipulation may be at once proceeded with. When the cervix is fully dilated, if any operative interference be required version or forceps will usually answer the purpose; the former is especially indicated when speed is necessary—for example, when a fetal heart is heard.

Such methods I have never known to fail to produce satisfactory emptying of the uterus and cure of the toxaemic condition. One operation remains to be discussed—namely, Caesarean section. Möller, Paterson, and Humbert of Strassburg advocate the vaginal route, but the number of cases recorded by each is small—Möller reports only seven. McCann[7] described a successful case, and reported a mortality of 50 per cent. from the literature. The indications he gives for performing the operation in toxaemic conditions are (1) frequent fits, (2) labour not yet commenced, (3) contracted cervix, (4) a moribund mother and a live fetus (a rare combination), (5) pelvic contraction. In 1897 Kettlitz collected 28 cases showing a mortality of 50 per cent.; in 1899 Hillmann collected 40 cases with a mortality of 51 per cent., and in 1903 Streicherein reported 26 cases with a mortality of 31 per cent. From these figures it will be seen that the case mortality is really huge; in any case the operation aims at saving the child, if necessary at the expense of the mother, and I strongly hold that the reverse should always be our aim. I have never seen Caesarean section performed for eclampsia, and can see no prospect of ever performing it in this connexion except for mechanical reasons.

I present these opinions regarding the treatment of toxaemias complicating pregnancy in no dogmatic spirit, but merely as the considered results of recent clinical observations.

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MALARIA AND DISEASES OF THE EYE.

BY

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My excuse for writing this brief note is to attempt to clear up in the light of my own experience the exact position of malaria as an etiological factor in the production of eye disease. The question is of great practical importance at all times, but more so in these days when we have large military forces operating in malarious regions. My attention was specially drawn to this subject during the eight months (1916–17) when I acted as ophthalmic specialist to the troops in Malta. There I was brought into contact with a very large number of soldiers from the Salonica front infected with malaria. A great many of these presented eye symptoms. Interference with vision and night blindness were common complaints, and were generally regarded not only by the men, but also by their medical officers, as being directly due to repeated attacks of malaria. On examination, however, it was found that the symptoms in a very large proportion of the cases were explained by latent errors of refraction which previously had not given trouble, but now, under the strain of the unaccustomed conditions of sun glare, dust, and exposure, enhanced by the debilitating influences of the malarial poison, had become manifest. The night blindness was invariably associated with and accounted for by anaemia. I have found, however, that in tropical countries the hypermetrope seems to be specially liable to this complaint, and a good many of my cases in Malta were associated with this condition. Retinal haemorrhages were seen occasionally. In the examination of the fundus in many hundreds of cases in malarious countries I never found this symptom at all common. A true malarial retinal haemorrhage does occur in subtertian cases, either as the result of capillary thrombosis following parasitic emboli or as a sequel to definite blood changes of a pernicious nature, coincident with great anaemia, but the haemorrhage in the majority of the cases at Malta was certainly not due to such causes. I have a suspicion that some cases were due to overdosage with quinine in susceptible individuals.

Some American ophthalmologists regard malaria as the cause of much eye trouble, especially in the Southern States, and the statement has been made on the authority of Poncet, who published his results as long ago as 1878, that eye complications occur in 10 per cent. of malarial cases. My experience, as the result of twenty years' practice in a country where a vast amount of malaria was seen, does not coincide with these authorities. Eye complications in malaria appeared to be rare, yet the disease is credited with causing conjunctivitis, keratitis, corneal ulceration, iritis, retino-choroiditis, optic neuritis, opacities of vitreous and lens, nerve paralysis, retinal haemorrhages, etc. It is easy to make such wide and inclusive statements and difficult to disprove them. I would like to point out, however, that all these symptoms occur as frequently in districts in the tropics where malarial infection is not common as in parts where malaria is rife. They appear to be caused by the intense sun glare, dust and heat, the presence of such complicating conditions as trachoma, gonorrhoea and syphilis, debility, bad hygiene, and such intercurrent diseases as dysentery—especially the bacillary variety—a common cause of corneal troubles and iritis. In hospital practice in Penang, where the bulk of the patients were either Tamils or Chinese, though both nationalities were equally exposed to and frequently the subject of severe malaria, it was among the former race that the largest amount of such climatic eye troubles was seen. For instance, the Kling is very subject to all the forms of keratitis and corneal ulceration, night blindness, xerosis-conjunctivitis, optic atrophy of a primary chronic nature, non-specific, and probably due to malnutrition and chronic anaemia. All this is understandable, for the Kling is often an individual of poor physique and low resisting power and will not feed himself properly. The Chinaman, on the other hand, is a person of much vitality and good physique, though he takes all the malaria that is going. The cause of eye trouble in the Kling is, in the great majority of cases, malnutrition, degenerations, and ensuing secondary infections.

What we have to regard as almost certainly due to the direct action of the malarial poison are the following:

1. What is commonly called keratitis dendritica is simply a sequel to a herpes of the cornea, and due to a direct action of the malarial poison on the ganglion trophic cells of the fifth nerve. An exactly similar condition occurs quite frequently in influenza, and is due probably to a similar cause. I saw several cases of this in Malta among soldiers infected with malaria. A practical point is that quinine will not help in this condition unless the cause is diagnosed at the very beginning of the attack and energetic quinine treatment started immediately. Once the disease has a firm hold on the cornea and degenerative changes have occurred, general treatment does not appear to help, yet it will most certainly do so in the beginning.

2. A similar poisoning of nerve elements by the direct action of malaria results in external muscle paralysis. The third, fourth, and sixth nerves may be affected, more commonly, in my experience, the sixth.

3. A malarial neuralgia affecting the branches of the ophthalmic division of the fifth is common and may produce reflex conjunctival inflammation, but a pure malarial conjunctivitis would be difficult to diagnose.

As regards the deeper structures, I have never diagnosed malarial iritis or cyclitis or choroiditis. Neuro-retinitis may arise as a complication in malignant and subtertian cases and may be succeeded by nerve atrophy and blindness; and I have also seen a retrobulbar neuritis which appeared to be of malarial origin. Haemorrhage from the retinal vessels occurs under the conditions I have already mentioned.

Probably the truth of the matter as to the action of the malarial fevers in producing eye disease is that the parasites or their products have no direct power of producing inflammatory results in the eye structures (and this is in accordance with what happens elsewhere in other organs), but they have the power of affecting the

nervous supply of the eye, probably by direct degenerative action on the central nerve elements, and as a result the following may ensue: First, atrophic changes in the cornea producing a typical keratitis. Secondly, degenerative changes in the tissues of the optic nerve producing a true malarial neuro-retinitis. Thirdly, paresis of the extrinsic muscles of the eye. Fourthly, affections of the sensory nerves of supply.

This, I think, represents a fairly accurate and reasonable view of what really occurs. All the other many affections of the eye structures which have been described as being malarial are not truly so, but are probably simply intercurrent affections or complications.

A practical conclusion is that in military operations in tropical countries in all cases of chronic eye trouble latent errors of refraction should be looked for. Their correction will in many cases cure or alleviate greatly the condition even though the error may be a small one.

AN OPERATION FOR RECONSTRUCTION OF THE URETHRA IN CASES OF SEVERE OR IMPERMEABLE STRICTURE.

BY

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THE following cases illustrate a method of procedure for reconstruction of the urethra in severe or impermeable stricture which will prove, in my opinion, more reliable and easier to perform than any other yet commonly practised.

A patient, aged 43, admitted to Christchurch Hospital in March, 1917, under my care had complete retention of urine, and the doctor who sent him had failed to pass any instrument. It was found that no instrument could be passed owing to a tough stricture in the bulbous portion of the urethra. The site of this stricture corresponded with a scar in the perineum, where an abscess had been opened some years previously. He stated that he had frequently to pass a catheter himself, that numerous doctors had dilated his strictures at intervals during the past eight years, and that the process had been more frequent and difficult of late. He had a high temperature and rapid pulse on admission, and looked pale and ill. Rigors also occurred.

Paracentesis suprapubically failed to relieve him except for a trickle. It was judged that the failure was due to the bladder being full of blood clot. Suprapubic cystotomy was performed without loss of time, and a very large quantity of foul-smelling blood clot and urine escaped. The bladder was washed out and drained. He recovered rapidly, and in a few weeks had put on flesh, but no instrument could be passed through the urethra. I decided to attempt some method of restoration of the urethra.

In Murphy's *Clinics* (December, 1916, vol. v, No. 6, p. 1189) Dr. Hochrein of Chicago described an original operation, performed for the first time in October, 1914, for the cure of an impassable stricture of the penile portion of the urethra by the use of a pedicled attached flap of dartos. I decided to adopt this method with necessary modifications.

Operation.

With the patient in the lithotomy position, a Wheelhouse's sound was passed as far as the stricture and an incision of ample length made in the middle line of the perineum down to and through the urethra on to the end of the instrument. With some difficulty a fine probe was passed through the stricture into the bladder. This was left in whilst the dense fibrous tissue was divided, laying open the "floor" or ventral wall of the urethra. I continued this incision until I was able easily to pass my finger into the bladder alongside the probe. I now dissected away all scar tissue, being careful only to preserve a strip of the "roof" of the urethra, representing, perhaps, one-third of the circumference. This appeared quite normal and was essential for the further steps of the operation. A broad flap of dartos was now cut in such a way as to leave the base attached in the vicinity of the point of the urethra which was first opened—that is, the most distal portion of the stricture. This flap would be 2½ in. long and 1½ in. broad, its rounded free end pointing towards the meatus. When dissected back, it reached easily to the limit of the dissection, which had been carried towards the bladder, as previously described. A rectal tube, the size of the middle finger, was now passed through the meatus and brought out in the wound. This was re-entered and passed easily along the proximal urethra into the bladder. The flap was brought back over this, and, by slightly displacing the rubber tube, the left side of the flap was secured by numerous plain catgut interrupted stitches to the corresponding edge of the strip of urethral roof which had been left as described. This was repeated on the other side, and the end of the flap was finally stitched accurately to the divided circumferential edge of the proximal urethra. The gap in the dartos was closed with a few catgut stitches and the incision closed. The tube was secured to the retracted foreskin by a stitch behind the corona. It was my intention to leave the tube in for three weeks, but the patient sneezed it out at the end of a week. It was cleaned and sterilized, and I was somewhat surprised to find that it went in again with ease. Three weeks after the operation it was removed, and the patient has passed urine with perfect ease since (eleven months ago). I was able to pass a 14 to 17 Lister's bougie with ease six months after the operation. About seven months after the operation the patient had a typical attack of renal colic, and about a week later he informed me he had passed a round smooth brownish stone as large as a pea.

I have since performed similar operations in two other cases.

In the first of these I had the misfortune, in shaping the flap, to divide the superficial perineal artery on the right side. As a natural result the flap sloughed on that side. I managed to close the resulting fistula at a second operation, and when last heard of the wound was quite healed, and he was passing urine normally. In the second of these cases there was a perineal fistula just proximal to a stricture. The patient had for a considerable time been passing all his urine through the fistula, and his life was a misery to him. In this case I took the flap from the left side and turned it across. This seemed easier at the time, and involved much less time in stitching. The operation in this second case was performed under spinal anaesthesia, owing to the patient's age and debilitated condition. All the patients up to the time of writing are quite healed, and passing urine normally.

I have been induced to put these cases on record because I believe the flap operation is easier to perform and a great deal more satisfactory than the grafting operation. There is no doubt in my mind that the urethral epithelium rapidly grows from the strip left in the roof of the urethra, and covers the entire surface of the dartos flap.

THE INFLUENZA EPIDEMIC IN A CAMP.

BY

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THE widely prevalent influenza epidemic visited this camp recently, 1,439 cases being admitted to hospital between June 21st and July 10th. The admissions on the first day of this period numbered 27, and gradually increased to their maximum on July 1st, on which day 154 cases were admitted. Thereafter the number of admissions gradually decreased.

Most of the cases were of characteristic type—admitted with temperature ranging from 101° to 104°, complaining of headache, backache (lumbar), general aching, and sore throat. The majority stated that they had been suddenly taken ill, with a feeling of great weakness. They looked ill; but apart from the fever, some congestion of the pharynx, and in a few cases slight bronchial catarrh, presented no other symptoms.

The illness ran a short course, the average duration of stay in hospital being five days. Within twenty-four to forty-eight hours of admission the temperature dropped by crisis to normal, or hovered between 99° and 100° for a few days. During the period of elevation of temperature the patients slept most of the time, and did not care to be disturbed, even for food. As soon as the temperature dropped they sat up in bed looking and feeling well, and began taking their food well.

Complications were few. Several patients had obstinate constipation; one or two had mild diarrhoea. Cough in a few cases was troublesome. Sixteen of the 1,439 cases

developed more or less typical lobar pneumonia; of these seven died. So that, although the incidence of pneumonia was low, the case death-rate for pneumonia was high.

Preventive Measures.

As soon as the epidemic declared itself measures to prevent its spread were adopted.

All cases, when they reported sick with a temperature of 99° or over, were immediately sent to hospital. The whole of the contacts of three units were passed through the Levick spraying chamber. No reduction occurred in the number of admissions from these units, there being a greater incidence after than before the use of this method. In other units gargling with permanganate solution (1 in 5,000) was tried, but no effect was noticed.

In one unit spraying the nose and throat with acroflavine solution (1 in 1,000) seemed to have a distinct preventive effect. In many huts where it was used after the occurrence of two or three cases no further cases developed. The results here would seem to warrant further trial of this method.

Bacteriology.

The bacteriological investigations comprised the examination of: (1) Smears and growth from nasopharynx, (2) smears and growth from sputum, (3) blood cultures, and (4) growth from cerebro-spinal fluid.

Forty-three cases were chosen at random and examined on different dates, with the following results. Out of the 43 cases only in 16 was the nasopharynx swabbed.

1. *Nasopharynx.*—(*a*) *Smears.* Amongst other organisms present there was a predominance of a Gram-positive diplococcus. Pfeiffer's bacillus was absent in all cases.
(*b*) *Culture.* The same organism—namely, a Gram-positive diplococcus—was obtained, Pfeiffer's bacillus being absent in all.
2. *Sputum.*—(*a*) *Smears.* Forty-one sputa were examined, in 32 of which Gram-negative bacilli were found, often in clumps, as well as Gram-positive diplococci. In the remaining 9 cases there was an abundance of Gram-positive diplococci.
(*b*) *Culture.* The media used were agar, trypsin blood agar with rabbit's blood enrichment, and trypsin agar with human blood. The same sputa were used.

(1) *Agar.*—Minute transparent circular colonies about the size of a pin's head were obtained at the end of forty-eight hours. The colony was slightly granular towards its centre. On staining the culture by Gram's method the organisms were seen to be Gram-positive diplococci.

(2) *Trypsin Agar with Rabbit's Blood Enrichment.*—After forty-eight hours two distinctly different colonies were visible. The one was a thin semi-transparent colony about the size of a pin's head, and presented a somewhat granular appearance. On staining by Gram's method the organisms were identical with the Gram-positive diplococci found in smear of sputa and of growth obtained in agar.

The other colony was a minute discrete transparent colony with a smooth rounded edge, with no evidence of stipplings on the surface. These organisms did not take up the stain readily by Gram's method, so a modification of Gram's (as regards time) was adopted. The length of time for counter-staining with 1 in 20 carbol-fuchsin was increased to three, five, and ten minutes respectively; the period of ten minutes was found to be the most satisfactory. The organism was a small cocco-bacillus with rounded ends, slightly larger than that found in smears of sputum, feebly stained towards the centre, and was Gram-negative.

(3) *Trypsin Agar with Human Blood.*—Growth was more luxuriant on this medium than on "trypsin agar with rabbit's blood enrichment," but presented the same cultural appearance. This organism—Gram-negative bacillus—was only feebly stained by basic aniline dyes, and had no action on the sugars. Plates gave the following results:

32 plates showed a mixed culture of Gram-negative bacilli with Gram-positive diplococci.
9 plates showed Gram-positive diplococci and no Gram-negative bacilli.

3. *Blood.*—Nine cases with marked symptoms were chosen for blood cultures. Of these all were sterile.

The two organisms found in the sputum were in every respect identical with the Pfeiffer's bacillus and the pneumococcus.

THE National Medical Institute of Mexico, which was founded in 1890 for research on the flora, fauna, climatology, and geography of Mexico, and for the exploitation of these resources, has by a recent decree been transformed into the Institute of General and Medical Biology. The institute has been engaged in the study and classification and action of native plants.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

LARGE DOSES OF SALICIN IN INFLUENZA.

IN 1891 I published the results of the treatment of 250 cases of the then so-called "Russian" influenza with large doses of salicin. During the continuance of that particular epidemic, and during those which followed in the next five or six years, I treated upwards of 2,000 more cases in exactly the same way—namely, by 20 grains of salicin given every hour—with exactly the same result—namely, that of rapid recovery obtained in an average of one day and a half without any complications, sequelae, or with the loss of a single life. At the commencement of this epidemic of "Spanish" influenza which is now coming to a close, I started treating the cases I had to attend in the same manner, with the result that in every case recovery has taken place within twenty-four hours. The first two or three doses removed all pain and discomfort, while the temperature was materially reduced. Also, as happened in the 1891 and other epidemics of about that date, the result of saturating the system with salicin was to do away with the infectivity of the patient. Twenty-seven years ago I rarely had more than one case at a time in a household, with perhaps the attendant who looked after the patient, who took it before he or she was thoroughly under the influence of the drug, and during this present epidemic I have been looking after 120 young ladies who, being in Government and other employment, live in a large hostel. Among all of these only nine cases have occurred, and each one of these could be traced to infection outside the hostel, in the office in which the sufferer had been working. Not one single case caused it to spread among the other inmates of the house, salicin in every case being administered and pressed at once. It seems to me that by administering these large doses of the drug fearlessly we have a method both of curing the disease rapidly and preventing the spread thereof. It is needless to say that in no single case have I come across the slightest ill effects from the large doses of the drug given.

London, W. E. B. TURNER, F.R.C.S.

REDUCTION OF DISLOCATION OF HEAD OF HUMERUS.

KOCHER'S method of reduction causes pain, and in my experience frequently fails. Traction on the arm with the foot in the axilla gives excruciating agony. Reduction under anaesthesia necessitates two surgeons, and, in my opinion, chloroform is not without extra danger.

The following manipulation is probably not original, but I find no account recorded in the ordinary textbooks.

The surgeon requires the assistance of two men. The patient sits in a chair with the sound arm over the back. One assistant sits in a chair on the injured side, both his hands are placed on the axillary border of the scapula (fingers towards the vertebrae), and he is told to press the shoulder blade towards the spine. The other assistant stands on a chair behind the patient, takes hold of the wrist and forearm, and is told to pull the arm up, the tips of the fingers of the injured limb pointing towards the ceiling, the elbow extended, the palm of the hand looking forwards, the biceps parallel with the ear of the patient. The surgeon supports the head of the bone by gentle pressure with his thenar eminence. This procedure is continued until the muscles are felt to relax, usually less than five minutes. The arm is gradually lowered, and, if everything has been done slowly—no sudden movement—the humerus will be found in position when the arm is brought to the side.

I claim for this method the immediate cessation of pain from the moment the manipulation commences. The vertical position corrects the shortening of the muscles by taking away pressure from the nerves of the brachial plexus, the fixation of the scapula rendering such extension complete.

I have had no difficulty by this method in reducing various kinds of dislocation, but the subspinous variety has not come under my observation.

W. H. COSENS,
Major R.A.M.C., Medical Officer in Charge Dorchester Auxiliary Hospitals and Prisoners of War Hospital, Dorchester.

MEDICAL EDUCATION IN ENGLAND.

A Note on Sir George Newman's Memorandum to the President of the Board of Education.

BY

Sir T. CLIFFORD ALLBUTT, K.C.B., M.D., F.R.S.,

REGIUS PROFESSOR OF PHYSIC IN THE UNIVERSITY OF CAMBRIDGE; PRESIDENT OF THE BRITISH MEDICAL ASSOCIATION.

Medicine, as a function of civil society, has come late into the field. The Church, on its secular side, and the Law gained power and influence while room and gear were yet ample. Late comers at a feast have a cool reception; the seats are occupied, and the best victual has been served. Medicine, depending as it does upon the attainment of large and exact knowledge, could not make itself felt in the State until not only were the physicians thus equipped but the laity also sufficiently educated to hear its message and to recognize its powers. The physician and the public must be ready together to realize the meaning of Medicine in civil society, to claim its services both for municipal and private interests, and to call for physicians armed with trained intelligence and exact knowledge to respond to these needs. As regards the immediate present, let us compare for a moment the health of the armies now campaigning in East and West, I will not say with the condition of those of Marlborough, but even with those but lately stricken by disease in the fields of South Africa. A Pharmacopœia of our great grandfathers rather resembled the collections which children gather on the seashore; here and there something curious or useful, for the rest scraps of seawood, dead star-fish, pebbles, and empty shells.

Again, the late arrival of Medicine as an organ of society was due in large part also to the custom of regarding it as no more than a traffic between individuals. The sick man went to the doctor to buy a remedy, an antidote, natural or magical. The notion was of life as a spirit shut up in a tabernacle, and of disease as an intrusive "morbid entity"—a phrase not unheard to-day—to be driven out of the tabernacle. The broad relations of man to his circumstances, that life is no independent activity but a reaction between two surfaces, inner and outer, body and milieu, and a function of the two, was not conceived. Hippocrates, as we see in his treatise on *Airs, Waters, and Places*, knew better, but the idea was shortlived. Even yet we have to learn that Medicine is as much a condition of a stable society as Law, and deserves no less an homage. There is, it is true, a private medicine, as there is a private law, but in both cases subsumed under far larger issues.

Medicine is awaking to these great issues, vindicating its authority, and claiming its place in the great councils of the realm; not without the jealousies of old placemen, old customs, old ideas. And the public is rubbing its eyes to see this new champion, to hear the new herald, to be aware of a new birth—for it is no less. The rude physiological adaptations of man and his circumstances, with their hideous material waste and spiritual agonies, have to give way to rational combinations and harmonies.

We cannot hesitate to say that to-day is the most critical moment of all past time in the history of medicine. Are we ready for it? Schools are roused, hospitals are awakening to larger views, science is finding in medicine some of its most intricate and interesting problems, as, for example, the interpretation, and by it the illumination, of such problems as those of physical chemistry; theories of vitality and other mysterious forces are being deserted for the chemistry of colloids, the properties of surface tension, of osmosis, of ionic streams, and other functions of molecular modes of energy, which can be tracked out and measured. When we contemplate what is before us, tasks which we cannot evade by calling them academic and going our way, when it is perceived, even by thoughtful laymen, that we must master these problems for which the advances of science has given us the keys, or be run down, we must ask, Are we ready? Are we to be cowed by the war, or roused by it to the larger ideas and directer lines of work which, I repeat, science is now marking out for us? Shall we take the tide?

The Memorandum on Medical Education in England.

This is the question which is set plainly before us in the epoch-making report—I say epoch-making if the epoch make it so—on medical education which is just published to the world; not in a corner, nor to doctors only, but as a memorandum to the President of the Board of Education by Sir George Newman.*

For this report or address—it is modestly called "Notes"—teachers have been in some measure prepared by that of Professor Flexner; this appeal however is concerned with us in England; it is no general exhortation, but a homethrust.

Its contents are briefly as follows: After the introduction are considered—first, the function of the medical practitioner; secondly, university education in medicine—a point made crucial by the author; then follow five chapters on the preliminary sciences; and then the clinical subjects and their teaching, preventive medicine, the place of research, graduate studies, are discussed. There is a concluding chapter of great importance, reinforcing the lessons to be pondered and digested.

To attempt even a survey of this large and rich contribution to the new birth of medical education is out of the question; all we can do is to consider a few leading features of it. In a chief place I would welcome the emphasis laid upon the general practitioner as the foundation of medicine in this country—a principle I have often tried myself to reinforce. Almost unawares a contrary process, that of gradually eviscerating the general practitioner (I wish he had a better name, such as the good old name of physician, still preserved to us in the United States), has been, and is, at work; tuberculosis has been taken from him, the infectious fevers, venereal diseases, childbirth and child-care, and so on; so that general practice may become but a gleaning after the reapers. Sir George tells us truly that this tendency is a grievous mistake. Let us hope that these and like cuttings are but removed for the moment, in order to strike them anew with the intention of restoring them as vigorous saplings to the old gardener with his varied experience and intimate touch. But Sir George hastens to add that the old gardener, now well aware of his highest need, is calling for a larger and deeper education—that for him a university education may be made accessible and efficient. Such a purpose, as we shall see, is not to pull down the high standards of our universities; on the contrary, their methods are to be enlarged and enkindled, but at the same time to educate the physician in a new climate; to add depth to the breadth of general practice. In a phrase, we have to begin in earnest to dig for new foundations.

And the family physician needs something more than technical education; he needs a larger and less wasteful life. Sir Robert Morant begs him to make himself more felt in public affairs, especially in those in which his testimony is invaluable; but, as things are, how is a man in practice as it is to-day, even if not a very busy man, to avoid those incessant interruptions and petty cares which so break up his days and hours that he has no time even to think, still less to enrich his mind by reading and debate? Not only so, but he is now almost compulsorily unprogressive; even his weekly journals too often lie in unopened piles, medical societies are a rare enjoyment, and those advantages of advanced and special study, which, as Sir George says, are essential to his professional life, are out of his reach—nay, out of his sight. Can we wonder if in these circumstances he may be something of a bat when compelled to stand in the glare of a public platform? We may be proud that when called upon he acquits himself so well; not rarely remarkably well.

Graduation Study.

On graduation study much is said in the address which is imperative. If the family physician is to do more than mark time, he must have opportunities of entering, for not inconsiderable vacations, on instruction in new methods and introduction to new principles; also for conversance in his daily work with the scientific methods and equipment of district laboratories. These are demands which not only ought to be met, but which must be met, if medicine is to hold its own. No trades union methods, no Ministries, no severity of examinations—some of which may indeed be degrading—can in any way make

* *Some Notes on Medical Education in England.* A memorandum addressed to the President of the Board by Sir George Newman, K.C.B., M.D., F.R.C.P., Chief Medical Officer, and a Principal Assistant Secretary of the Board of Education, and Medical Assessor of the Universities Branch of the Board. H.M. Stationery Office. 1918. (8vo, pp. 129. To be obtained through any bookseller. Price 9d.)

up for or prevent intellectual stagnation. How such a revolution is to be made possible is shown in part in the Memorandum; and by chance in another address recently given by Sir Bertrand Dawson, in which like warnings and like encouragements are set forth. In both the documents means for compassing something of these ends are foreshadowed; and we must learn, so far as may be, to help ourselves, but private enterprise is unequal to the reform.

The Preliminary Sciences.

From these general but fundamental considerations we must go on to more specific counsels. Upon each of the preliminary sciences Sir George has much to say, and not a little to teach, even to our teachers. He points out that without a solid ground of anatomy, physiology, chemistry, and pathology, no useful practice of medicine can be built. The current methods of teaching these sciences are fully brought out, and much credit given to the progressive systems now pursued in all university laboratories.

Pathology in a Balloon.

Of minor and easily remediable defects I may dwell on the circumscription of each science in too exclusive a department; the want of free currents between each and all. This defect I may illustrate by the divorce *a thoro* of pathology and clinical practice, and the want of penetration of pathology by physics; nay, the want of full penetration of biochemistry by physics. In these words, of course, I am not speaking of individual professors, which would be unjust indeed, but of the general conceptions which even the advanced student brings away with him. And the pathologist, not by any means of his own fault, is compelled by his divorce from the clinical wards to work in a balloon. He is not familiar with the instances of the very *pathos* which it is his business to interpret. In private practice likewise the pathologist is made to live on scraps which fall from the doctor's table, instead of being called in to co-operate on equal terms. His contributions are "riders," not a central part of the problem. Sir George puts the interesting question whether the student could have an advanced course of physics, connected, let us say, with his biochemistry, at a later period of his curriculum. Let me give an instance of such need: in the current teaching we are told in respect of renal dropsy to administer diuretics, purges, sweats, and other eliminants—to get rid of the fluid. Now, whatsoever aid may be found in these auxiliaries, it seems certain that such treatment is superficial; it is not in accordance with the principles of the malady, which lie in some perverse relation between the fluids and the tissues, or their constituent elements, so that the scientific treatment must be by physical or biochemical methods, and consist in such modifications of diet as may alter these relations favourably. Drugs play a secondary part. All such considerations impress upon us the warnings of the Memorandum—that our departments are too watertight. In Cambridge we are building bridges between physics, biochemistry and clinical medicine, which we believe will open out new routes. May I venture to say here how great is the advantage of a degree in medicine to a teacher of the ancillary sciences; time after time one is struck with the facility thus given to him in approaching these borderland problems.

The Medicine of Prevention.

Another cardinal feature in the Memorandum is the insistence on the medicine of prevention; and here again we are held up by opaque walls between the various lines of research. Preventive medicine also by this disadvantage is in peril of sterility. All medicine should be "preventive"; we are concerned with prevention, not only of the initiations of disease but also of every phase of it; too often we are summoned to appear only in the fifth act. Sir James Mackenzie has strongly urged the instant duty of attending to the beginnings of disease, and thinks that little in this sphere is being done. I suggest, and I think Sir George Newman will agree with me, that the fault is not so much that little has been done, as that the really large researches which have been made on preventive medicine—as by bacteriologists on the laws of immunity, of antitoxins and serums, by the physiological interpretation of symptoms, and so on, and again by the biochemists and physiologists on animal physics, relations of proteins, sugars, and fats, and the like—are lost in the almost total lack of co-ordination of their results with clinical methods, and in the relegation of many of these researches to municipal and departmental laboratories. But how great are the issues which lie hid yet from us, while such spectres as Cancer and Insanity stalk unbound in our midst.

I must not pass on from pathology without insisting on the urgent duty of providing for comparative pathology by the establishment of the laboratories and staff required. That as yet we are in the Ptolemaic stage of pathology, almost wholly anthropocentric, is a text from which I have, I fear, only too often preached; most welcome then is this same counsel from Sir George Newman.

The Study and Teaching of Clinical Medicine.

But it is impossible to touch on many even of the important proposals and criticisms in this part of the Memorandum; I must hasten on to the section on Clinical Medicine. Here there is room for some controversy; personally I agree with the suggestions of the author. There is much anticipation of gathering to the English schools of the foreign students, graduate and undergraduate, who before the war betook themselves to German and Austrian schools. These hopes, in my opinion, are as yet too sanguine. Why have foreign students passed over our shores to frequent Continental schools? Because in them there are for the most part, even in the smaller cities, organized systems of clinical science and research; in the English schools we have nothing of the sort. It is, however, one of the many merits of the report that its criticisms are broad and impartial. While deciding that on the present lines clinical teaching and research cannot get forward, the peculiar merits of the English system—such as it is—are notwithstanding forcibly presented. The Briton is a practical not a logical person. He feels that organizations must be elastic and adaptive, and can only be so if they grow. If imposed by drill they choke spontaneity and stop initiative. The logical man drives a main principle through the host of contingencies reckless of the frictions, and no little devastation by the way.

The Briton has a profound sense of contingency as against nude principles and is an artist in providing for it as he goes on. Hence his amazing success as a politician. But he has the defects of his qualities. We suffer from a lack of organization, an imperfect inspiration of the clinical work with scientific principles; a lack of continuous research in diagnosis and therapeutics. The earlier phases of disorders, as seen in the out-patient room, are not linked up with the later phases in the wards, and so on. Yet with all this, wherein no individual is to blame, the author finds that, so far as it goes, the English method carries out old and sure principles of English medicine. The student observes Nature for himself; he is counselled and supervised, but is himself the workman. Things are taught which cannot be taught by lecture or demonstration—the sense of touch, the handling of instruments, the relation between student and patient. But there is a considerable account to the contrary. Medicine is taught almost wholly as an art rather than as a science; a larger measure of the scientific or research spirit is needed. If clinical medicine is to progress, professors of medicine, surgery, and obstetrics must be endowed who will devote the greater part of their time, at any rate, to teaching and investigation; and the professors must be provided with adequate staffs and laboratories. Promotion should be not by seniority, but by merit and natural aptitudes. I have often spoken of Harley Street as the grave of the great clinical teachers of the London hospitals. A teacher of personal ascendancy, a master of the sciences of medicine, a man to organize team work in research, may almost from the beginning be obliged for his livelihood to provide for his entry into consulting practice; and at his time of maturity, even if he does not retire from teaching altogether, that career has to be his first consideration.

How the several branches of clinical medicine are to be developed and co-ordinated must be left for the reading of the report itself. Under the head of Graduate Study, also, these divisions and reintegrations receive a full exposition.

Finance.

But let it be clearly understood that all these betterments of medical education will cost money, and let us not hesitate to say so. The matter is, indeed, quite plainly stated in the Memorandum. The first of the remedies

there suggested is the need of further financial assistance, for it is recognized that it is impossible to-day to teach medicine, as it ought to be taught, out of students' fees or uncertain endowment. As on the Continent, so in England there must be more substantial aid from the State if the undertaking is to be placed upon a satisfactory national basis, and it is a matter in which the nation is greatly concerned. The Board of Education has, indeed, made a beginning by means of grants in aid now amounting to upwards of £40,000 a year, but it is certain that these grants must in future be on a much more liberal scale. It is true that the acceptance of such financial assistance by the medical schools involves the acceptance also of the supervision and advice of the Board of Education, functions which the Memorandum assures us are to be exercised with due regard to the freedom of the university or medical school and in co-operation with their medical faculties. One of the objects which the Board assures us it has in view is the maintenance of the university standard, character, and freedom of teaching; an attitude which ought to allay any apprehensions that may be felt lest the State should desire unduly to interfere with the freedom of education.

The Curriculum.

The reader will ask, What of the loading of the curriculum? The author of the Memorandum is well aware of this difficulty, and hopes to lighten the burden, but he hardly answers the inquiry. It is suggested that by unloading much of the memory work, by reformation of the examination system, and by infusion of the spirit of study instead of much of the drudgery of it, a good deal can be done to lighten the ship. Of the evils of the present examination system we are all of us only too well aware; moreover, I find that teachers, being unused to undertake the responsibility of judging of the attainments of their pupils, shrink from the exercise of it, although much time and stress, some of it actually unwholesome, might be saved by class conferences and certificates. At later stages the Cambridge system of theses for degrees is most valuable; the man who has been thus obliged to undertake a subject of research and submit himself to discussion of it, is from that time a different man.

CONCLUSION.

Painfully aware as I am of the imperfect indications I have been able to give of this broad, wise, farseeing, and judicial Report on Medical Education, I have said enough, I hope, to send my brethren to its perusal. I trust that in it we may rely upon finding in the Board a spirit not of the bureau: that the Board of Education, so long at any rate as it is inspired by its present staff, will encourage and develop that training of the young physician on liberal lines, and make for those progressive methods, which must arm us all for that greater future which—in the Ministry of Health and in the growing needs of the public—will in the near future throw upon our profession a far wider sphere of usefulness, and draw into our ranks men capable of carrying medicine to that higher destiny which we believe the future has in store for us.

Reviews.

GAS GANGRENE.

A MONOGRAPH from the Pasteur Institute is always received with respect, and that on gas gangrene, its bacteriology, experimental reproduction, and serotherapy[1] is so apposite that it will certainly obtain immediate attention. The authors, MM. WEINBERG and SÉGUIN, have already published many articles upon special aspects of the subject, but this volume is something more than a mere war manual; it is a conspectus of the bacteriology of the subject.

The first part of the book is devoted to a review of the whole subject of gas infection, with an attempt to disentangle the nomenclature of the organisms discovered and described in France, Germany, America, and elsewhere, and to identify similar strains masquerading under different names applied on mixed principles. Their historical work is so detailed and so well tabulated that the authors have probably settled the matter once for all. The upshot is that before the war but two varieties were recognized as associated with gas infection—*B. perfringens* (*B. aërogenes capsulatus*) and the *Vibrion septique* (*B. oedematis maligni*); each was supposed to act alone. The war had not proceeded far when it was realized that gas gangrene of typical clinical form is not always produced by the same organism, is often caused by several associated, and is often a complex result of the combined action of the principal agents with numerous other organisms playing an accessory or indeterminate part. The authors, moreover, are moved to deplore the futility of all clinical classification, since symptoms and signs have no constant relation with bacterial findings. It must be admitted that their own line of approach leads but little further on this road. They conclude that gas gangrene is not a morbid entity of specific pathogeny; it is a syndrome, in the forefront of the causation of which are the *B. perfringens*, *B. oedematiens*, and the *Vibrion septique*, but with which very many others, aërobic and anaërobic, are associated. Latent or atypical forms occur, and own the same bacteriological initiative. Part II, filling some 170 pages, is devoted to a minute and complete description of all the many important organisms concerned in the infection, and will be an indispensable work of reference for every laboratory.

Part III is devoted to a study of the gas infections in their origin and evolution, and sets forth the preponderant influence of the anaërobic organisms which frequently cooperate, though it is rare to find more than two associated in the presence of organisms of suppuration. A study of the toxicity of the principal anaërobic organisms leads the authors to conclude, as clinical evidence suggests, that death results from intoxication. In the form definitely "toxic" the organisms are rarely to be isolated from the blood, and not generally is there a true septicaemia. The authors consider those cases "classical" in which emphysema predominates over oedema; those cases "toxic" in which the converse holds, and admit a third or "mixed" group, whilst noting that all these forms may have a subsidiary "putrid" character, due most often to association with *B. sporogenes*.

There follows a detailed study of a number of cases chosen from their material, and a description of the experimental reproduction of the clinical forms in animals. The short section on etiology adds nothing to the fuller accounts in recent clinical manuals.

Part IV deals with serotherapy, and gives an extremely interesting account of most patient and painstaking work, but does not, so far, carry conviction to the clinical mind. The authors are convinced that the promise of real service will be fulfilled; they admit that the curative power of serums is limited by the rapidity with which the toxins are fixed in the nerve centres. They do not despair either of a preventive serum, and, indeed, have some evidence to show already. The difficulty seems to lie in this, that by their own showing the serums are absolutely specific, and the organisms incriminated are multiple. This review by no means does full justice to a volume which is a mass of facts, records, and observations. We can only repeat that every bacteriological laboratory will find it indispensable. It should be added that the plates are very fine—worthy of the publishers—and that there is a full bibliography.

[1] *La gangrène gazeuse: Bactériologie, reproduction expérimentelle, sérothérapie.* By M. Weinberg et P. Séguin. Monographies de l'Institut Pasteur. Paris: Masson et Cie. 1918. (Roy. 8vo, pp. 444; 45 figures, 16 plates. Fr.20.)

NOTES ON BOOKS.

DR. F. PEDRAZZINI'S little book on cerebro-spinal commotion[2] contains a painstaking analysis of much of the literature of this frequently discussed subject, together with a few new observations made by the author himself. The first forty pages are concerned with the physics and mechanics of these forms of commotion and the author's experimental production thereof in animals. We do not find any striking novelty in the book, which, none the less, gives a clearly written and adequate account of the whole subject. The author holds that the treatment of cerebro-spinal commotion should be medical and that to open the skull or dural sac is unjustifiable.

[2] *Commozione Cerebro-spinale.* By Dr. F. Pedrazzini. Milano: Ulrico Hoepli. 1918. (Fcap. 8vo, pp. xv + 170; 13 figures. L.3.50.)

British Medical Journal.

SATURDAY, AUGUST 3RD, 1918.

THE ANNUAL MEETING, 1918.

THE eighty-sixth annual meeting of the British Medical Association, which was held in London at the close of last week, resembled its three immediate predecessors in being given up to the transaction of necessary business and the discussion of medico-political affairs by the Representative Body. The war came just after the Aberdeen gathering had broken up, and the Association has now met four times running in London without any of the scientific and social features that made the annual meetings what they were in happier times.

At the Aberdeen meeting Sir Clifford Allbutt was elected President of the Association, and it had been arranged that the annual meeting of 1915 should be held in Cambridge. The Association has been fortunate in having as its President in these troublous times a man of so much distinction, who, in spite of numerous calls upon him by the many other public offices he holds, has found time to take an active part in the work of the Council and its committees, and on many occasions to lend his great authority to representations made to the Government by the Association. The chief duty he had to perform as President this year afforded an illustration of this readiness to help. The Stewart Prize, founded by the late Dr. Patrick Stewart, physician to the Middlesex Hospital, for the recognition of important work already done or researches instituted and promising good results regarding the origin, spread, and prevention of epidemic diseases with a view to encouraging the continuation of such researches, was awarded to Lieut.-Colonel Robert McCarrison, I.M.S., for his researches into the physiology and pathology of the thyroid gland and the parathyroid gland and the light he has thrown on the epidemiology of goitre. Colonel McCarrison is on duty in India, and the prize was received for him by Sir Havelock Charles, Medical Adviser to the Secretary of State for India, who took occasion to refer to the deputation from the Association headed by Sir Clifford Allbutt, which waited recently on the Secretary of State for India; he thanked the Association for the energy and perseverance it had shown in championing the cause of the Indian Medical Service, and brought a message from the Secretary of State which proved that Mr. Montagu, as he told the deputation, is personally anxious not only to restore to the Indian Medical Service the attractions it formerly possessed, but also still further to increase them. It is a great satisfaction to the Association and to the profession it represents to know that there is a statesman at the head of affairs for India who has the knowledge to appreciate as well as the will to further scientific medicine, and that he has already given a foretaste of his goodwill and a promise of further attainment.

Several very interesting debates took place on July 25th and 26th in the Representative Body upon matters of great importance to the medical profession and the public, as will be seen from the full report of the proceedings, of which the first part appears in the SUPPLEMENT this week. We propose here to touch on a few topics reported this week which seem to call for special notice.

In the first place the Treasurer's short statement of the financial position of the Association should be studied by all members, for although money is not everything, it counts for very much in the work of a great organization, and the whole fabric can only stand secure as long as it rests on a basis of sound financial policy. The task of the Treasurer and Finance Committee grows no simpler with each new year of war, and the death of Mr. Guy Elliston, the able head of this department, has added to their difficulties, and their anxieties for the future, during a period of increasing stress. Considering the great rise in prices, and especially in the price of paper which now costs more than five times what it did before the war, the general disturbance of trade, and the loss of revenue that must follow a drastic reduction of advertisement pages, the position of affairs to-day is much stronger and more stable than it could have been under less prudent management, and very great credit is due to Dr. Haslip for his unremitting work towards this end.

In presenting the report of the year's work of the Central Medical War Committee, Dr. Verrall gave an outline of the relations of this body, first, with the War Office, and for the past nine months with the Ministry of National Service, and of its appointment to be a statutory medical tribunal under the new Military Service Act. He referred generally to the way in which the problem of medical man power had been handled by his committee and its subcommittees. To hold a just balance between the insistent claims of the three fighting forces on the one hand and the needs of the civil population and the interests of individual practitioners on the other, has proved a task of increasing delicacy and complexity. With regard to the extended age limit of military service for medical men and the vocational conscription of the profession as apart from other callings—matters which were properly raised in the course of the debate—Dr. Macdonald, Chairman of Council, reminded the Representative Body that this principle was accepted by it a year ago, although the manner in which it had been put into practice by the Government might well be open to criticism. Very diverse points of view found expression, but a general desire was shown to abide by the consequences of last year's decision, and to give a renewed expression of confidence to the statutory professional committees. Several members put into words once again the widespread feeling that the services of medical men in the army were not being put to full use, and although one speaker suggested that things were already improving in the direction of better organization and economy, it was thought right to pass a resolution urging that the Central Medical War Committee and the Scottish Medical Service Emergency Committee should be given access to the unpublished report of the Committee of Inquiry which went to France in September last to investigate the distribution of medical personnel and the administration of the medical services in that theatre of war.

Dr. Verrall was not called upon to describe the administrative and financial machinery of substitution medical practice which is now being set up in order to secure the release of fit men for medical commissions in the forces. While this matter is regarded by the Central Medical War Committee as one of its most pressing duties—and possibly the most difficult problem it has yet been called upon to solve—the time is scarcely ripe for the public discussion of details. It is important, however, that the Committee should take the profession into its confidence at the earliest

possible opportunity, and we have no doubt that this will be done.

Recommendations on two subjects of importance to the medical profession and the public were brought forward by Dr. Garstang, chairman of the Medico-Political Committee, and led to animated debates. The first dealt with proposals for a State-aided midwifery service and the position which the general practitioner should hold in relation to normal midwifery, antenatal care, and the clinical supervision of the practice of midwives. The second invited the Representative Body to consider the desirability of raising a voluntary fund to secure medical representation in Parliament by assisting approved candidates; the general idea being approved, it was left to the Council to take steps towards this end. More interest will have to be aroused in this project throughout the profession, and much active work is necessary if anything useful is to come of it. In the meanwhile, as Dr. Rice-Oxley maintained in a letter we printed last week, medical men and women might do a great deal more for their profession and for the community by coming forward as candidates for seats on county and borough councils, and thus taking a larger and more active part in public affairs.

THE FAT PROBLEM.

THE Inter-Allied Scientific Food Commission, as noted in the JOURNAL of June 15th, considered it desirable to fix a minimum ration of fat and decided that it should be 75 grams—about 2⅝ oz.—per average man a day. This decision involved the recommendation that it might be necessary to maintain a certain stock of animals to make good the deficit of fat likely to exist after fats of vegetable origin had been used to the fullest extent. Theoretically it may have seemed a little difficult to justify this recommendation, for it might be argued that an increase of carbohydrates in the food should meet the need of the economy. The profession is therefore much indebted to Professor Starling for the discussion of the subject contained in the paper published this week (p. 105) on the significance of fats in the diet.

He points out that laboratory experiments of short duration are inadequate to determine the part played by fats in ordinary life; thus the experimental evidence is conclusive that, when the basal need for protein is satisfied, the balance of energy required can be replenished indifferently with isodynamic quantities of carbohydrate or fat. But when applying this result in practice regard must be had to two considerations. The first is that fat is a much more concentrated source of energy than carbohydrate, and the second that the absorption of fat takes longer. Hence man, with his relatively uncapacious alimentary canal, and, in particular, civilized man, with his dislike of working upon an "empty stomach," cannot view with indifference the replacement of fat by something which, considered from the point of view of its energy value, is just as good. For these reasons it is very desirable to know what proportion of fats in the dietary is the most satisfactory.

Ordinary laboratory experiments being, *ex hypothesi*, unsuitable, it is necessary to fall back upon the statistical method, although this method has, as Professor Starling observes, obvious limitations, a particularly relevant one being that the high price of fatty food has always restricted its use among the less wealthy classes. So far as adults are concerned, Professor Starling concludes from his statistics that 20 to 25 per cent. of the needed calories ought to be furnished by fats. To the data cited, we might add those of Dunluce and Greenwood. These investigators found that in the working class budgets collected by the Board of Trade the proportion of total calories furnished by fats varied from 17.6 per cent. in the worst paid to 23.2 per cent. in the best paid working class samples, whilst among munition workers, during the "eat less bread" campaign, the proportion rose to 37.9 per cent.[1] The lowest proportion yet observed was rather less than 8 per cent., in the historic dietary of the Millbank prisoners, where, according to Greenwood and Thompson's analysis of the figures, a diet yielding 3,498 calories contained only 29.75 grams of fat, which contrasts with the 148.5 grams of fat allowed to seamen and marines (total calories of diet 4,083) during the same period. It is of interest to remark that, although the Millbank diet was not associated with any signs of weakness or ill health, the medical officer considered that the prisoners showed evidence of plethora—an observation which was the exciting cause of curtailment of diet followed by disastrous consequences.[2]

Professor Starling also consider the case of children and adolescents, but, as he remarks, it is difficult to decide, upon the evidence before us, what the ideal proportion of fat in the diet at these ages is. There is room for much further research upon the dietetic physiology of late childhood and adolescence. Not a little of the physiological literature respecting growth reminds us of Professor James's gibe at the Hegelians who, he says, when discussing the "ego," "spell its name in capitals and pronounce it with adoration, act in short as if they were going up in a balloon, whenever the notion of it crossed their mind." This remark is apposite to much "*Wachstumslehre*."

The work of du Bois proves that the basal rate of metabolism for each unit of surface is a good deal higher during childhood than after adolescence. At the age of 6 it is not far short of 60 calories an hour for each square metre of surface, and does not reach the adult level of 40 before the end of the 18th year. In the more prosperous classes, prepubescent growth begins earlier than among the poor, although, according to Key, poor and rich alike end their growth at about the same time. The effects of different kinds of food upon growth are, as Stanley Hall observes,[3] difficult of interpretation, and indeed the evidence cited in his carefully documented work is of no physiological value. Yet the question is one of extreme importance, particularly in times like these when so much depends upon the adolescent generation. Professor Starling has done well to initiate a discussion by commenting upon the gaps in our knowledge; we hope that the matter will not be allowed to rest where it is.

MEDICAL EDUCATION IN ENGLAND.

THE volume entitled *Notes on Medical Education in England*, addressed in the form of a memorandum to the President of the Board of Education by Sir George Newman, is published this week as a parliamentary paper.[4] It is an important document, and we may adopt without hesitation the opinion expressed by Sir Clifford Allbutt in the article which we have the honour of publishing this week (p. 113), that it marks an epoch. His masterly review of the general situation and of the scope and purpose of the memorandum will be an inspiration to readers,

[1] Medical Research Committee, Report No 13.
[2] *Proc. Epidem. Sect. Roy. Soc. Med.*, April, 1918.
[3] *Adolescence*. By G. Stanley Hall, London, 1908, vol. i, p. 32.
[4] *Some Notes on Medical Education in England*. A memorandum addressed to the President of the Board by Sir George Newman, K.C.B., M.D., F.R.C.P., Chief Medical Officer, and a Principal Assistant Secretary of the Board of Education, and Medical Assessor of the Universities Branch of the Board. H.M. Stationery Office. 1918. (8vo, pp. 129. To be obtained through any bookseller. Price 9d.)

and we shall not attempt to cover the ground his far-seeing vision has embraced, but we may say a few words about the genesis of the memorandum. This is explained in the introduction, where it is pointed out that the Board of Education comes into the matter primarily because it is concerned with medical education as being the Government department charged by Parliament with "the superintendence of matters relating to education in England and Wales." In the performance of this duty the Board acquires a wide knowledge and experience of other forms and branches of education which are of value in considering the special problems of medical education; it is interested in the qualifying examination in respect of its suitability as a test of the education and training of a student and of the prejudicial influence which unsuitable tests may exert upon the character of the education afforded. Further, the Board has the power of giving grants in aid of medical education in England. This power was first exercised in 1908, when a grant was made to St. Mary's Hospital Medical School, London; since then the number of medical schools receiving grants has gradually increased, so that in the financial year 1913–14 grants were made to ten medical schools in London, to the medical departments of the universities of Durham, Leeds, Liverpool, Manchester, Birmingham, Sheffield, and Cambridge, and also to the London School of Tropical Medicine. The total sum thus disbursed was over £40 000. One of the principles by which the Board is guided in making grants for the clinical studies is that a satisfactory measure of responsibility for the conduct of those studies shall be secured to the university. This is a most important principle, for with it the future of medical education, not only in England but in the United Kingdom, is bound up. Recognizing that it is necessary that the Board of Education should possess first-hand knowledge of the character and scope of the work being done in different institutions, and also as to the views of the universities with regard to questions of common concern, a special standing committee was appointed in 1911 to advise the Board on the various problems of university education in England and Wales, and this committee has, during the last few years, visited the medical schools in London and the provinces on behalf of the Board. The purpose of the memorandum is to make plain both the merits and the demerits of the English system, especially the system of instruction in clinical medicine, and it is natural that more should be said of its demerits than of its merits. But its strong and good points are recognized, and there does not seem at present to be any suggestion that it should be replaced by some copy of a foreign system; the wise policy—and this seems to be the intention of the memorandum—would be to select what of good in other systems is assimilable, so that medical education in England may grow along its natural line of development. In a review so comprehensive as that contained in the memorandum there must be a number of details, in statement or criticism, to which exception may be taken, but the essential point is recognised, that medical teaching should be of university standard.

THE NUMBER OF MEDICAL STUDENTS.

THE President of the General Medical Council has issued a statement showing the number of students who in May, 1918, were in actual attendance on courses of instruction in preparation for medical degrees or diplomas in the medical schools of the United Kingdom. The total number at that date was 7,630; of these 2,250 were women. Of the 5,380 men 671 were under 18 years of age, and of these 61 were attending medical schools in Ireland; 553 came from places outside the United Kingdom. The number of students in the first year (due to qualify in 1923) was 2,043, of whom 665 were women. The number in the second year (due to qualify in 1922) was 1,868, of whom 619 were women. The number in the third year (due to qualify in 1921) was 1,534, of whom 484 were women. The number in the fourth year (due to qualify in 1920) was 1,034, of whom 275 were women; and the number in the fifth year (due to qualify in 1919) was 1,151, of whom 207 were women. The total number of students in the London district was 1,855, in England and Wales (including London) 3,259, in Scotland 2,485, and in Ireland 1,886. The total number of students in May, 1918, was greater than in January, 1917, when it was 6,682, and still greater than in May, 1916, when it was 6,103; the number of women students in these two years was 1,735 and 1,379 respectively. It will be seen, therefore, that while the number of male students has increased by 433 as compared with January, 1917, the number of women students has increased by 515 in the same period.

MAGNESIUM AND CANCER.

CERTAIN statements have recently been made by French physicians tending to suggest that salts of magnesium may be of value in the treatment, and perhaps in the prevention, of cancer. Dr. Dubard of Dijon, in a paper read before the Académie de Médecine, stated that he was in the habit of giving magnesium carbonate in doses of 8 to 12 grams (120 to 180 grains) a day to patients who had undergone an operation for cancer. He was led to adopt this treatment by various considerations, which may be summarized in the statement that a fall in the amount of magnesia in the tissues favoured the onset and the development of cancer. He gave certain statistics. Of 550 cases of cancer dating from earlier than 1913, 360 were carefully followed, and 125, or 34 per cent., were still alive in the fifth year; 190 had died early or been lost sight of, but it was ascertained that 11 of them had survived from six to seven years. In contrast to this he quoted the statistics of Carl Otto of Copenhagen, who found that of 196 patients only 14 survived from one to four years after the first appearance of symptoms. Dubard would explain the increasing frequency of cancer in the later periods of life by the fact that in advancing age magnesia in the tissues is replaced by lime. The treatment must be continued for months, and Dubard admits that very probably the administration of magnesium carbonate by the mouth may not be the best way of introducing it into the system, and suggests that an organic preparation of the metal would be better. Dr. Regnault, of Toulon, reported to the same academy that he was led, by observing the good effect of magnesium salts on warts, to prescribe for papilloma and superficial epithelioma a powder consisting of a mixture of magnesium hydroxide and magnesium silicate, of each four grains. The results were satisfactory; and even in inoperable cases he witnessed a great diminution of pain, an improvement of the general condition and apparent arrest of the disease. He recommends that magnesia should be given to all patients who have been operated upon for cancer, in the hope of preventing recurrence. How magnesia produces the effects recorded is not clear, but Regnault notes that in 1913 Professor Robin called attention to the fact that magnesia is present in the defensive zone around new growths. In September, 1915, Delbet and Karajanopoulo reported observations which appeared to prove that solutions of magnesium chloride increased enormously the number and activity of the phagocytes. An experiment was made on a dog weighing 16 kilograms by injecting 150 c.cm. of a solution of anhydrous magnesium chloride (12.1 in 1,000). Blood was drawn before and after the injection and mixed with cultures of various microbes. In one experiment 500 polynuclear cells in the blood drawn before the injection had included 245 microbes; 500 polynuclear cells in the blood taken after the injection had under identical conditions, included 681. Further experiments showed that similar action took place in the circulating blood. The injections were not toxic. According to Pinard, anhydrous magnesium chloride is not easy to obtain, and he states that an equally efficacious solution

can be prepared by dissolving 18 parts of crystallized magnesium chloride, which is ordinarily kept by the pharmacist, in 1,000 parts of sterilized water.

GENERAL PRACTITIONERS AND VENEREAL DISEASE.

WE who, in the phraseology of a hundred years ago, have been "bred to the study of physic," are only too well aware of the ravages of venereal disease among the community, and there are not wanting signs that the public also is beginning to appreciate the nature and extent of this great evil. The National Council for Combating Venereal Diseases, with whose aims the British Medical Association is in full sympathy, has already done much good work in the campaign of social enlightenment. Recognizing that the co-operation of the medical profession at large is essential for the attainment of its objects, this body has lately appealed to the Association for active help. The Association thereupon sent a circular letter to Divisions and Branches inviting their support and pointing out various directions in which practical aid can be given by general practitioners throughout the country. It needs little imagination for doctors to realize the danger to national health that must follow the return to civil life when war is over of soldiers and sailors suffering from venereal disease, possibly in large numbers. There may be doubt as to this, but the only safe course is to prepare for the worst. The main line of defence must be prompt diagnosis and adequate treatment by private practitioners, reinforced, but not by any means replaced, by the public clinics which are being set up in growing numbers everywhere by local health authorities at the instigation of the Local Government Board. This is a point upon which we desire to lay stress. It was put with much force to the Representative Body on July 26th by its chairman, Mr. E. B. Turner, who has worked hard and long for the cause, and represents the British Medical Association upon the National Council. For some reason or other, but certainly not from any lack of goodwill, the general practitioner —the backbone of all medico-social progress—is not, it would seem, quite rising to the occasion, more particularly in insurance practice. Doctors, we are told, are inclined to hand over at once their venereal cases to the nearest municipal clinic rather than undertake the treatment themselves. We agree with Mr. Turner that the treatment, no less than the prevention, of venereal diseases is the proper province of the general practitioner, both in his own interest and in that of his patients. He should take the fullest advantage of the facilities afforded by the public venereal centres, both in diagnosis, in treatment in the case of individual patients, and for gaining experience himself in the administration of the newer remedies; but on no account should he let this branch of practice slip out of his hands, as though it were one more specialty with which he has little or no concern once a preliminary diagnosis has been made. The whole trouble can be traced back, as we have often remarked, to the inadequate training of medical students in the practice of this part of medicine, and to the lack of post-graduate courses of instruction in these subjects for general practitioners.

CEREBRAL CHANGES IN PERNICIOUS ANAEMIA.

FROM a minute study of the brain in seven cases of pernicious anaemia, Woltman[1] found that degenerated areas, such as are characteristically present in the lateral and posterior columns of the spinal cord, occur in the brain with about the same frequency as in the spinal cord. Focal degeneration is seen in the white matter, and also in the grey matter, beginning around the pyramidal cells of the marginal grey layer, and from destruction of these cells a secondary and very diffuse degeneration of the medullated fibres in the white matter results. The degeneration in the fibres of the internal capsule and in the long tracts passing through the pons was less intense than that in the brain or in the cord. In three out of the seven brains the focal degeneration could readily be seen with the naked eye; in two it was moderately intense and visible under the microscope, and in the remaining two it was very slight indeed. The position of the plaques, not only around the blood vessels but also around some of the larger pyramidal cells, is in favour of the view that the degeneration is brought about presumably through toxic action, possibly assisted by stasis, by a substance accumulating in the perivascular spaces. Well-marked psychoses occasionally associated with pernicious anaemia probably have little or nothing to do with these degenerative plaques, which, however, may help in the production of milder mental manifestations, such as drowsiness, apathy, and terminal delirium, though the principal factor underlying these phenomena is probably the toxin.

[1] H. W. Woltman, *Arch. Int. Med.* (Chicago), 1918, xxi, 791-843.

HOME OF RECOVERY FOR NEURASTHENICS.

THE Home of Recovery, near Leicester, for neurasthenic and other functional nervous disorders occurring in men discharged from the forces was formally opened on July 25th by the Right Hon. John Hodge, M.P., Minister of Pensions. This home, which is, we believe, the second of its kind to be established in England, is beautifully situated about two miles from Leicester, in large grounds, so that outdoor games and gardening are available for the patients. It has been receiving a limited number of patients since February last. A new wing has been added to the large country mansion in which it is established, in order to provide more single rooms for patients as well as additional sanitary and bathing accommodation. The whole can now house about seventy patients and the necessary staff, and the large outbuildings have been adapted to provide engineering and carpentry curative workshops as well as a gymnasium. Dr. Astley V. Clarke, Senior Physician to the Leicester Royal Infirmary, is medical director, and there is a resident medical officer. The home, the new wing, and the whole of the equipment have been provided by the Leicester Disabled Warriors' Fund, initiated by the Mayor, Alderman J. North, about two years ago. It is hoped to raise £100,000 for the extra benefit of local discharged disabled members of the forces; the cost of upkeep of the home, which is managed by a local committee, is defrayed by the Ministry of Pensions. The opening ceremony was marred by rain, but the spacious tents provided the necessary shelter for the large company, which included the Mayor of Leicester, chairman of the home, the Duke of Rutland, General Sir John Maxwell, G.O.C.-in-C. Northern Command, and the Bishop of Leicester. The Medical Director, in summarizing the work already achieved in the home, said that twenty-eight patients had been discharged on completion of their "cure," and that of these twenty-five returned at once to employment, and good accounts of them had been received. Three patients were discharged improved; eighteen, who for various reasons had not completed the cure, had left the home; six were discharged for misconduct, and nine discharged themselves; two were unsuitable cases, and one was a malingerer. Discipline in these homes is a problem which requires careful handling. The patients by their very ailments are more suspicious and unreasonable than ordinary patients, and as they are discharged men they cannot be retained against their will. They wear no distinctive dress, as do military hospital patients, and therefore when on "pass out" they are not known. Further, they have often been in and out of hospital for many months, their functional troubles have become "fixed," and they have had no occupation. It is not surprising, therefore, that they frequently look with suspicion on curative workshops, etc., but it is essential that some interest in life should be given them to divert them from introspection. Many more of these homes will be required,

and some are in process of being formed. Judging by the results so far obtained they fully justify their existence.

CALL FOR EMERGENCY SUBSTITUTES.

Appeals are made to the Central Medical War Committee from time to time for temporary assistance in practices in which, owing to illness or death, the incumbent is not only unable to do the work, but, owing to the depletion of the local profession, is unable to secure adequate assistance from his colleagues, and it is found impossible to secure a locumtenent through the ordinary channels. Offers of assistance for two, three, or four weeks from practitioners, either men or women, who could be free at short notice would be greatly valued, and should be sent at once to the Secretaries of the Central Medical War Committee, 429, Strand, W.C.2.

We regret to record the death, on July 28th, of Dr. Frederick T. Roberts in his 79th year. Dr. Roberts was connected with University College, London, throughout the whole of his active career, and retired with the rank of Emeritus Professor of Medicine and Clinical Medicine. We hope to publish some account of his life in a later issue.

In answer to a request made by a county medical officer of health to the medical officer of the Local Government Board, the Registrar General has arranged that he will supply to every medical officer of health for the year 1918 and in subsequent years a statement of the number of deaths under one year of age in each sanitary area, classified by legitimacy as well as sex. This is in addition to the valuable statistical information already supplied to medical officers of health by the Registrar General, and it is hoped that it will assist further investigation into legitimacy of birth in relation to infant mortality.

Medical Notes in Parliament.

Criminal Law Amendment Bill.—The nominations made for the Joint Committee on the Criminal Law Amendment Bill are as follows:

House of Lords.—Earl Desart, Earl Beauchamp, Earl Sandhurst, Earl Strafford, and Lord Muir Mackenzie.

House of Commons.—Sir William Collins, Sir Willoughby Dickinson, Mr. Godfrey Locker-Lampson, Mr. Neville, Mr. John O'Connor, and Mr. Tyson Wilson.

Bombing of Hospitals.—Colonel Faber asked, on July 25th, whether the Secretary for War would consider the advisability of having the hospitals at the front some distance away from the fighting units, so that no mistake could possibly arise in enemy bombing operations; whether to assist this object light railways could be laid down by which to remove patients on to the main lines; and whether the Minister would insist on the Red Cross being plainly painted on our marquees. Mr. Macpherson replied that the measures suggested had already been put in hand so far as labour was available. Hospital establishments were clearly marked.

The State and Food Supplies.—In the House of Lords, on July 29th, the Earl of Crawford said that the total amount paid by the Royal Commisson on Wheat Supplies was approximately £270,000,000 f.o.b. for supplies of wheat and flour. Of the quantity so purchased a considerable amount was allocated to our Allies, and the balance available for British consumption represented approximately a f.o.b. value of £160,814,000, or, including freight, insurance, etc., about £226,000,000. Down to September, 1917, the cost of distribution had been wholly met by the margin between the purchase price and the price of sale. Since that date, owing to the introduction of the 9d. loaf, there had been no available margin. The disbursements of the Royal Commission on Sugar Supplies on account of sugar, freight, and other charges, had been £147,000,000 since the establishment of that Commission. These figures exoluded sums paid on account of the Allies and not yet refunded. The whole of the cost of distribution had been met by the margin between the purchase and selling prices. The problems of supply and distribution were inextricably linked. The total amount paid by the Ministry of Food in respect of purchases was £195,000 000 odd. Of this sum £60,000,000 odd was for the purchase of food at home, and £135,000,000 odd was for imported food. It was not possible to state exactly how far the cost of administration in this case had been met by the margin between the purchase and sale prices, but it was hoped that it would be covered by that means.

THE WAR.

THE ETIOLOGY OF TRENCH FEVER.

The Medical Investigation Committee on Trench Fever has presented its fourth report to the D.G.M.S., France, as follows:

A Commission under Major Richard P. Strong, M.R.C., was appointed by the American Red Cross Research Committee, and Major Strong and Major Homer F. Swift, M.R.C., became members of the Committee on Trench Fever in December, 1917.

On March 9th, 1918, as a result of the experiments of the American Commission, we reported to the D.G.M.S. in France that trench fever was transmitted by the louse living under natural conditions. We have now to report in brief the further results obtained by this Commission.

1. The disease is caused by a filterable virus.
2. It can be conveyed by the bites of the louse alone, as well as by other means.
3. Infection appears to be conveyed by such bites for at least twelve days after the louse has ceased to feed on a patient with trench fever.
4. The virus is present in the urine, and the disease can be transmitted experimentally by inoculation with urinary sediment on a scarified area of the skin.
5. Similar results have been obtained with the sputum and saliva.

A full account of the experiments on which these conclusions are based will shortly be published by the American Red Cross Research Committee.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed in Action.

Surgeon Probationer J. J. A. Lord Flood, R.N.V.R., was reported as killed in action, in the casualty list published on July 25th.

ARMY.

Wounded.

Captain G. A. Russell, Canadian A.M.C.
Captain A. T. Spuy Vanger, South African Medical Corps.
Lieutenant F. S. Adams, R.A.M.C. (temporary).
Lieutenant S. Riddiough, R.A.M.C. (temporary).

Wounded and Prisoner of War.

Captain E. H. Griffin, D.S.O., R.A.M.C.

Prisoners of War.

Lieut.-Colonel H. B. Kelly, D.S.O., R.A.M.C.
Major F. G. Lescher, M.C., R.A.M.C.
Captain W. F. Dunlop, R.A.M.C.
Captain W. G. Harnett, R.A.M.C.
Lieutenant G. V. W. Anderson, R.A.M.C. (temporary).

Deaths of Sons of Medical Men.

Edwards, Robert A., Lieutenant West Yorkshire Regiment, youngest son of Lieutenant E. H. Edwards, R.A.M.C., died on July 14th, in a field ambulance in France, of wounds received the same day.

Graham, George Wilson, Lieutenant Royal Air Force, youngest son of Dr. J. Gibson Graham of Glasgow, killed in action, July 13th. He was formerly in the Glasgow University O.T.C., and in the Royal Naval Air Service.

Pridham, Hugh Trevor, Gunner Royal Field Artillery, son of the late J. W. Pridham, M.R.C.S., of Broadway, Dorset, died in hospital abroad, July 5th, aged 20.

Wallis, Walter Kelvin, Lieutenant, attached East Lancashire Regiment, eldest son of the late Dr. J. A. Wallis, died abroad, July 17th.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

A SPECIAL Supplement to the *London Gazette*, dated July 26th, contains long lists of awards in recognition of "gallantry and devotion to duty in the field." The list includes the following medical officers who receive the honours indicated:

Bar to D.S.O.

Captain (acting Lieut.-Colonel) Francis Casement, D.S.O., R.A.M.C.

He evacuated all the wounded and salved a large quantity of surgical material, blankets, and stretchers during a long retirement. His courage, coolness, and resource were most marked during the whole of this trying period. (D.S.O. gazetted June 4th, 1917.)

Major (temporary Lieut.-Colonel) Hugh Allan Davidson, D.S.O., R.A.M.C.

When in command of his unit he maintained the advanced dressing station in spite of heavy shelling by the enemy, only withdrawing when ordered to do so. He visited the regimental aid posts under heavy shelling, and by his example and energy many casualties were evacuated which might otherwise have been lost. (D.S.O. gazetted January 1st, 1917.)

Captain (acting Lieut.-Colonel) Thomas Swan Eves, D.S.O., R.A.M.C.

He was in charge of an advanced dressing station which was being heavily shelled by the enemy, and he personally and thoroughly carried out a complete change of organization. Later, he was superintending the loading of ambulance cars near a railway bridge which was a special target for the enemy's guns, and though twice thrown over and bruised by bursting shells he stuck to his post till all the wounded had been dressed and evacuated. His fine performance under continuous shell fire till the enemy were close upon him was a splendid example to all. (D.S.O. gazetted January 1st, 1918.)

Lieut.-Colonel FitzGerald Gabbett FitzGerald, D.S.O., R.A.M.C.

When his casualty clearing station was heavily shelled he not only evacuated his patients to places of safety, but salved practically all the stores of his unit. This action was performed twice over, and on both occasions his courage and ability were pre-eminent. (D.S.O. gazetted January 1st, 1917.)

Major (temporary Lieut.-Colonel) Harry Beatty Kelly, D.S.O., R.A.M.C.

When the camp, in which over forty stretcher cases were collected, was heavily shelled, he collected the bearers and removed the wounded to a position of safety. Again, when the infantry were being withdrawn, he collected casualties with the bearers and carried them through a heavy barrage to the ambulance cars, thus saving several lives and setting a fine example to his men. (D.S.O. gazetted January 1st, 1917.)

Lieut.-Colonel John Powell, D.S.O., R.A.M.C.

During a long period of active operations and owing to the great number of extemporized formations from the divisions, which increased continually from day to day, the task of providing adequate medical facilities was one of extreme difficulty. By his indefatigable energy and powers of organization he successfully met all demands, and completed the evacuation of all wounded with splendid efficiency. On one occasion hearing some wounded had been left behind, he went himself, under heavy and continual shell and machine-gun fire, with three ambulances, and brought them in. Throughout, his conduct was beyond all praise (D.S.O. gazetted June 3rd, 1918.)

Temporary Captain (acting Lieut.-Colonel) Lawrence Drew Shaw, D.S.O., R.A.M.C.

He was placed in charge of the forward division of the combined field ambulances. Although constantly exposed to heavy shell and machine-gun fire, he organized the system of evacuation and extended it to neighbouring divisional units. By his inspiring example and disregard of danger he ensured a complete and successful evacuation of the wounded. (D.S.O. gazetted June 4th, 1917.)

Captain (acting Lieut.-Colonel) William Tyrrell, D.S.O., M.C., R.A.M.C.(S.R.).

When in charge of a line of evacuation he worked continuously for six days, and it was due to his gallantry, organization, and energy that touch was maintained so efficiently with the brigades and so many casualties evacuated. He displayed great courage and coolness throughout, and inspired those under him by his fine example. (D.S.O. gazetted January 1st, 1918.)

(To be continued.)

EAST AFRICAN OPERATIONS.

The following awards and promotions are announced for services rendered in connexion with military operations in East Africa:

To be C.M.G.: Colonel Gerard William Tate, D.S.O., A.M.S., Lieut.-Colonel Reginald G. Turner, D.S.O., I.M.S.

To be Brevet Lieut.-Colonel: Major (temporary Lieut.-Colonel) W. Benson, D.S.O., R.A.M.C.

D.S.O.: Lieut.-Colonels Arthur C. Adderley, R.A.M.C., and Temple Smyth, S.A.M.C.; Temporary Major (acting Lieut.-Colonel) Thomas M. R. Leonard, Special List, West African Medical Service, W.A.F.F.; Captain (acting Major) A. McW. Green, S.A.M.C.

Military Cross: Captains Frank M. Barnes, R.A.M.C.(S.R.), Henry D. Brown, R.A.M.C.(S.R.), Harold A. Crouch, R.A.M.C. (S.R.), James B. Lapsley, I.M.S., attached C.F.A., George S. Lawrence, R.A.M.C.(S.R.), Ralph R. Scott, R.A.M.C.(S.R.), Alexander F. Wallace, Northern Rhodesia Medical Service. Temporary Captains Mark C. Gardner, R.A.M.C., Thomas H. Massey, East African Medical Service, attached King's African Rifles; Henry R. Morehead, Special List, West African Medical Service, attached Nigeria Regiment, W.A.F.F.; Thomas R. Sandeman, Special List, West African Medical Service, attached Nigeria Regiment, W.A.F.F.; Wm. H. Watson, S.A.M.C., Christopher J. Wilson, East Africa Medical Service, attached King's African Rifles; Lieutenant Norman S. Bruce, R.A.M.C. (S.R.); Temporary Lieutenant Gilbert Burnet, R.A.M.C.

The King of the Belgians has conferred the decoration of Chevalier of the Ordre de la Couronne upon temporary Captain Adrian Stokes, D.S.O., R.A.M.C., for distinguished services rendered during the course of the campaign.

The President of the French Republic has conferred the Croix de Guerre upon Colonel Stephen Frazer Clark, A.M.S.

Scotland.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION.

THE seventy seventh annual meeting of the Medico-Psychological Association of Great Britain and Ireland was held at Edinburgh on July 23rd and 24th, 1918, under the Presidency of Lieut.-Colonel John Keay, R.A.M.C. After the transaction of the usual business the President delivered his inaugural address. This was followed by papers on the prevention and treatment of neurasthenia and other functional nervous breakdowns by Dr. Claud F. Fothergill, and on the infective factors in some types of neurasthenia by Dr. W. Ford Robertson. On the second day the members and their friends were hospitably entertained by Lieut.-Colonel and Mrs. Keay, at the Edinburgh War Hospital, Bangour. The wards of this excellently equipped hospital were visited and demonstrations were given by Lieut.-Colonel Cathcart, R.A.M.C.(T.), and Major Rankine on the construction and fitting of provisional artificial limbs; by Lieut.-Colonel Sir Harold J. Stiles, R.A.M.C., on cases from the orthopaedic department; and by Captain Edwin Bramwell, R.A.M.C., on cases illustrating functional neuroses. Major D. G. Marshall, I.M.S., and Dr. L. K. Davies showed microscopic preparations illustrating malaria and dysentery. By the kindness of the chairman and managers, and Dr. G. M. Robertson, an "at home" was held at the Royal Edinburgh Mental Hospital, Morningside. Owing to the war the annual dinner was not held, but the well-known hospitality of the Edinburgh members contributed in no small measure to the success of a very enjoyable and instructive meeting.

CENTRAL MIDWIVES BOARD FOR SCOTLAND.

The report of the Central Midwives Board for Scotland for the year ending March 30th, 1918, shows that the number of midwives enrolled was 3,310, made up as follows: 1,351 by certificate, 1,695 in bona fide practice, and 264 after passing the examination of the Board. The returns of the local supervising authorities show that 1,408 midwives had notified their intention of practising. The examinations of the Board are held four times a year, in Edinburgh, Glasgow, Dundee, and Aberdeen, according to the number of candidates entered at each centre. The total number of candidates was 303, of whom 39 only were rejected. The average marks of successful candidates were high, and as a large number of them had previously been enrolled as in bona fide practice, this is considered to be good evidence of the average standard of proficiency of the enrolled midwife.

Ireland.

REMUNERATION OF POOR LAW MEDICAL OFFICERS.

AT the last meeting of the Limerick guardians a letter was read from the Local Government Board stating that it had had under consideration the further resolution of the Limerick board of guardians of June 5th, asking again for sanction to their proposal to grant an increase of pay of £50 a year to each medical officer of a dispensary district in the union. The Board received a deputation on June 25th from the Poor Law medical officers and heard a statement of their claims, and had since very carefully reviewed all the leading aspects of the salaries question, the size and proportion of dispensary districts, the volume of duties, the extent of the available private practice, and the demand for doctors and their remuneration in other kindred spheres. Taking into account all the circumstances the Board was of opinion that this additional £50 a year might be added permanently to the maximum salary of £200 under the scale—the new maximum of £250 to be attainable after a service of twenty years as under, the present scale starting

from the existing initial salary of £150 a year and advancing by annual increments of £5, and accordingly sanction the following increases of salary: Dr. Ryan, £250; Dr. M. Grahame, £220; Dr. Mulcahy, £250; Dr. P. F. Graham, £250; and Dr. Moloney, £250. Dr. Corboy, £205; Dr. Humphreys, £195; Dr. Lane, £185; Dr. Enright £165 a year each.

A short report of the proceedings of the deputation, to which reference is made in the Local Government Board's letter, appeared in the JOURNAL of July 6th. The deputation was accompanied by the Right Hon. M. F. Cox, M.D., and Dr. Hennessy, Irish Medical Secretary. A strong resolution passed at the annual meeting of the Leinster Branch of the British Medical Association, urging the Local Government Board to sanction graded scales of salaries, which had been adopted by the Limerick, Dunshaughlin, Devlin, and other unions, was read by the deputation in support of the claims of the doctors of these unions that the salaries passed were not excessive, as stated by the Local Government Board, and that this Board should reconsider its refusal to sanction such salaries. The deputation, which, in addition to Dr. Cox and Dr. Hennessy, consisted of Dr. Denis Walshe, Dr. J. C. King, Dr. McCaul, and Dr. P. B. Moloney, is to be congratulated upon the success of the case it made for the Poor Law medical officers concerned. It was unanswerable. Dr. Hennessy, on behalf of the deputation, returned its warmest thanks to Dr. M. F. Cox for accompanying it to the Local Government Board and for his warm advocacy of the claims of the Poor Law medical officers.

ELECTION OF MEMBERS OF CENTRAL MIDWIVES BOARD.

At the recent election held pursuant to the provisions of the Midwives (Ireland) Act, 1918, the following four registered medical practitioners were elected by the registered medical practitioners resident in Ireland to act on the Central Midwives Board for Ireland (Section 3 (1) (*b*)): Sir Andrew J. Horne and Sir William J. Smyly, of Dublin; Sir John William Byers of Belfast, and Professor Henry Corby of Cork. The other seven members will be appointed by the Local Government Board for Ireland in due course.

Correspondence.

VANGHETTI'S OPERATION.

SIR,—In your issue of July 27th, p. 86, is a memorandum on Vanghetti's operation, by Mr. E. Pearce Gould, in which is related a case of a man who had received a gunshot wound of the left elbow twelve months previously, the articular ends of the humerus and ulna, together with a portion of the ulnar nerve, having been lost. Operation to obtain a stable joint having failed, amputation was decided upon as better than either a flail or a fixed joint, and a "clava" or peg type of motor was formed.

As we have quite recently had the honour of being asked by the Consultants' Council of the War Office to draw up a memorandum on amputation stumps, we beg to state, as our emphatic opinion, that no artificial hand can possibly replace the function of any portion of the natural hand, no matter how incomplete or restricted its movements may be. We are further of opinion that the movements of nearly every excised elbow-joint can, by appropriate and patient orthopaedic measures, be controlled and reconstituted. The bones can be made to approximate, and the movements of the joint can be controlled and be slowly re-established. Any elbow-joint, even if flail, can be fixed by appliances, and thus the natural function of the hand and fingers can be made to render infinitely greater service than that given by any artificial hand at present known to us.

We feel that cases of this type should not be submitted to amputation, whether "cineplastic" or other. We consider that no late amputation of the upper extremity should be performed save after consultation. The organization of the Army provides consulting surgeons in each Command.—We are, etc.,

T. H. OPENSHAW, C.B., C.M.G.,
J. LYNN THOMAS, C.B., C.M.G.

July 31st, 1918.

THE FUTURE OF THE MEDICAL PROFESSION.

SIR,—From letters written in the JOURNAL it is quite clear that the profession is aware that we are approaching a great crisis. The Government is forming what it thinks best for a Ministry of Health, and, as usual, places what already exists at a discount. From the trend of views expressed it is all for specialism and whole-time service, with full equipment supplied at the public expense.

In the past the medical profession has worked its hardest, finding its own equipment, with every obstacle put in its way by the powers that be, fees cut to their lowest, and endless certificates, etc., expected to be supplied for nothing. The profession must assert itself, and demand fair play to carry out the improved treatment of the public.

Who should know better what is required than the profession itself, and who has more right to expound its principles? Nine-tenths of the profession now in general practice have all the necessary knowledge and only want the equipment to be supplied to fulfil its duties. If clinics are to be formed, they do not require a whole-time service to attend to them, and every practitioner is capable of diverting a portion of his time to such service when proper remuneration is forthcoming.

Some assurance is wanted that those in practice will have a fair opportunity of offering their services in the different branches proposed to be started. Of course some are purely specialist offices, but the main part of the work is only the routine work of a general practitioner brought under one roof. If this assurance is not forthcoming it is time that the profession as a whole made a stand for its rights. No other profession would tolerate its foundations being so undermined. In the scheme for a Ministry of Health put forward by the Council in the annual report, under the heading "medical staff," the general practitioner only appears to figure under Class D, occasionally finding a place in the clinics, etc., and he is only offered a remuneration for work done, whilst the whole-time man has an assured salary regardless of how much or little he is expected to do. One sees visions of copious reports and statistics, to the detriment of practical work and also of the interests of the patients.

This is my opinion, formed from a study of the annual report before me. I hope I am wrong. At the annual meeting of the Croydon Division of the British Medical Association the opinion was expressed by all present that the attention of the general practitioner should be directed to the importance of qualifying himself in special sections of medical and surgical work, which are certain to form the basis of the treatment of the centres about to be established under the aegis of the Ministry of Health.—I am, etc.,

Wallington, July 22nd. A. Z. C. CRESSY, M.R.C.S.

SIR,—Dr. Lyth's letter is by no means difficult to answer. I do not recognize the inevitability of State interference in medical practice. I wish to be prepared for it. I do not wish our Association to be merely a scientific body regardless of the material interests of the profession.

The fighting material of the raw recruit I admire, but his methods are too crude. The same remarks apply to the Medico-Political Union. I read the pamphlet of abuse of the British Medical Association issued broadcast by the Union. Such methods of weakness I abominate.

With regard to Dr. Lyth's own position, may I refer him to a Biblical quotation: "No man can serve two masters, for either he will hate the one and love the other, or else he will hold to the one and despise the other." This is still true in the present day.

I have no doubt that the Labour party, with whom the Medico-Political Union is now coquetting, will make it very plain that no man can belong to a trade union society and remain a member of a kindred non-trade union society. I cannot reconcile the case of a medical man being a member of the trade union Medico-Political Union and the non-trade union British Medical Association.

After all, these are side issues. I wrote to impress on the individual members of the medical profession the necessity of safeguarding their financial interests. Let us get on with the work.—I am, etc.,

Crawley, July 28th. SIDNEY MATTHEWS, J.P., C.C.

Sir,—I have read with pleasure the excellent articles by Sir Bertrand Dawson. He has three most useful attributes—position in the profession, platform, and the courage of his convictions—and it is to be hoped he will use them to the full in advocating these very necessary reforms.

I should like to ask whether Sir B. Dawson is prepared to uphold his contentions against a state service by evidence from the existing state services. Hitherto I have not met with any definite evidence against a state service, only with the sentimental objection which I fully share, but in spite of which I am prepared to advocate the change because I believe it is necessary to the nation.

In passing I note the *Observer* has a column each week giving Sir B. Dawson's addresses, and I am glad to see the articles made public; it is the only way in which our views can be given to the laity, the only way we can educate them.—I am, etc.,

Mumbles, July 21st. F. de Coverly Veale.

MEDICAL CERTIFICATES AND TRIBUNALS.

Sir,—Is not the method of giving certificates described by Dr. J. Scott Battams (p. 100) a violation of our professional secrecy, and should not all certificates first be given to the patient, whether paid for or not? It is at the patient's discretion whether he uses the certificate or not.—I am, etc.,

Bradford, July 27th. W. M. MacIlraith.

RANK IN THE R.A.M.C.

Sir,—The enclosed resolution was carried unanimously at a meeting of the Torquay Division Local Medical War Committee on July 26th, and I am instructed to forward it to you for publication:

> That the Committee moves, in the matter of rank given to men of fifteen years' or more experience of civil practice on joining the R.A.M.C., that these men should be given at least the rank of captain on joining the service.

Our Committee feels that men who have been in practice many years and who have to join the R.A.M.C. under the conditions of the new Military Service Act will hold a most invidious and humiliating position if they have to go out as lieutenant and be under the orders of a young and inexperienced captain, for instance, who has merely gained that rank, perhaps, by a year's service of seniority. Our Committee has requested the Central Medical War Committee to take immediate action and also ascertain the opinion of the Local Medical War Committees throughout the kingdom, as the matter does not admit of delay. We are of opinion that, if the profession is unanimous and determined on this question, the War Office and the military authorities will see the wisdom of granting this rightful request.—I am, etc.,

G. Young Eales,
Honorary Secretary, Torquay Division and Local Medical War Committee.

Torquay, July 29th.

THE TREATMENT OF FUNCTIONAL NERVOUS DISORDERS IN THE ARMY.

Sir,—In your issue of July 20th you publish a request that medical men who are now being called up to serve with the R.A.M.C. should send in their names to the Director-General if they are desirous of undergoing a special course of training, and of undertaking therapeutic work, in functional nervous disorders. The enormous strides which have been made during the war in the treatment of these disorders, and the increasing recognition that the mental factors of strain and anxiety are primarily responsible for so many of the minor ailments met with in general practice should surely attract an adequate number of applicants. The need for a special course of training, by means of systematic lectures and clinical demonstrations and instruction, is emphasized by the fact that different cases of functional disorder require different methods of treatment, and that electricity, manipulation, isolation, and the more purely psychological methods of analysis, suggestion and hypnosis, each have their value in appropriate cases, if their limitations, their uses and abuses are clearly recognized. The most successful medical officer is he who has learnt to select the particular treatment best fitted for each case and who realizes that he must familiarize himself with different therapeutic methods. These can be learnt only by instruction in the hospitals which have been so successfully established throughout the kingdom for the treatment of functional nervous disorders.—I am, etc.,

July 27th. M.

Medico-Legal.

THE COVENTRY CASE.

Pratt and Others v. the British Medical Association and Others.

In the King's Bench Division, on July 15th, before Mr. Justice McCardie, the hearing was begun of an action by Dr. Ernest Camden Pratt, Dr. David Holmes, Dr. Andrew St. Lawrance-Burke, and Dr. Charles Hodge Cairns, registered practitioners of Coventry, against the British Medical Association, and Drs. William H. Lowman, William J. Pickup, John Orton, and Thomas Webb Fowler, registered medical practitioners of Coventry, and members of the Coventry Division of the British Medical Association. The plaintiffs claimed damages for alleged conspiracy to injure them in their profession, and to libel and slander them, and for alleged libels and slanders. The allegations were denied.

Mr. Schwabe, K.C., and Sir Hugh Fraser appeared for the plaintiffs; Mr. McCall, K.C., Mr. Hollis Walker, K.C., and Mr. A. Neilson for the defendants.

A brief notice of the case appeared in the Journal for July 27th, 1918.

The plaintiffs were at all material times members of the Coventry Provident Dispensary. It was alleged that on various occasions during the years 1909 to 1914 inclusive the defendants had unlawfully and maliciously conspired to publish libels and slanders of the plaintiffs in their offices as medical officers of the dispensary. In particular, it was alleged that the British Medical Association had published of and concerning all the plaintiffs the following notice in the British Medical Journal:

> *Appointments.—Warning Notices.*
> Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch of the Association named in the second column or the Medical Secretary of the British Medical Association, 429, Strand, London, W.C. . . .
> Coventry as regards Dispensary appointments.

It was also alleged that Dr. Orton, one of the defendants, had in January, 1909, written to Dr. C. W. Suckling saying that the conduct of the medical officers at the dispensary was considered to be against the honour and interests of the medical profession, and requesting him to refrain from meeting Dr. Burke or any of them in consultation, and that in consequence of this Dr. Suckling had so refrained. A similar letter written to Dr. Beckwith Whitehouse in May, 1909, was also complained of.

In May or June, 1912, the defendant Association sent a copy of a resolution to all the medical practitioners in Coventry and Birmingham to the effect that any practitioner holding an appointment at the dispensary was guilty of conduct detrimental to the honour and interests of the profession, and that in accepting such an appointment the plaintiff, Dr. Holmes, had acted contrary to the honour and interests of the profession. This was complained of as a libel.

On May 31st, 1912, a letter was sent to, *inter alios*, the plaintiff Pratt, pointing out that the Coventry Dispensary had been banned for the last five years for the reason, *inter alia*, that it was carried on in a manner injurious and detrimental to the honour and dignity of the medical profession, and that the boycott had been successfully maintained. He was also told that he would meet with the same treatment on taking up the appointment, and that action was taken with regard to the other officers, meaning the other plaintiffs. This was also complained of as libellous. The plaintiffs also complained of as libellous, the following (amongst other things): (1) A resolution passed at a meeting of the Coventry Division on December 10th, 1912; (2) a resolution (by the same Division) concerning Drs. O'Brien and David Holmes on March 4th, 1913; (3) a letter to Dr. Pratt dated March 7th, 1913; (4) a recommendation of the Executive Committee of the Coventry Division dated March 18th, 1913; (5) a resolution of the Coventry Division dated April 8th, 1913; (6) a resolution dated June 9th, 1913, expelling Dr. Pratt from the British Medical Association; (7) a letter written by Dr. Davidson to Dr. Cox dated June 12th, 1913; (8) a resolution of the Coventry Division dated November 6th, 1913, in which it was declared that in its opinion the conduct of Dr. Pratt in continuing to hold an appointment at the dispensary was detrimental to the honour and interests of the medical profession.

The plaintiffs also complained of an article in the Supplement to the British Medical Journal in which there was an account of the action taken by the Association in relation to medical aid institutions. It contained this passage:

> The medical officers who are secured for these posts may be divided into four classes:
> I. The failures of the profession (which was alleged in the statement of claim to include the plaintiffs and each of them).
> II. Practitioners who, though competent and steady, have not sufficient initiative to make a success of private practice and

prefer the fixed salary offered by such appointments with all its drawbacks.

III. Reputable members of the profession who through financial loss or through too early marriage and the responsibilities consequent thereon find it imperative to secure a salary larger than they could get as assistants.

IV. Junior members of the profession who take these appointments unwittingly.

A communication by telephone to Dr. Webb Fowler, made on April 13th, 1913, to the effect that he must not meet Dr. Burke in consultation because he was on the medical staff at the dispensary was alleged to be slanderous. A statement by Dr. Kenderdine, who was alleged to have acted as agent on behalf of the defendants to Dr. Pratt, to the effect that if he did not give up his appointment at the dispensary he would be boycotted, and that his life and that of his wife and family would be made miserable, was also alleged to be slanderous.

The defendants by their defence denied the charge of conspiracy and (with some exceptions) the publication of the various alleged libels and slanders of or concerning the plaintiffs.

They contended that the defendant Association was formed for (*inter alia*) the maintenance and honour and interests of the medical profession, and said that all the individual defendants were members of the Association, and held various offices therein. It was also said that in and since the year 1906 and at all material times the defendant Association and the Coventry Division thereof had objected to the manner in which the said Coventry Provident Dispensary had been conducted, on the grounds that the principles and rules under which the said dispensary was governed were fundamentally opposed to the principles and rules approved by the said Division and by the defendant Association for the proper government of such provident dispensaries in the best interests as well of the patients attending the said dispensary as of the medical practitioners being officers of the said dispensary. The grounds upon which the said objections were based were mainly—

1. The absence of a maximum wage limit upon those patients to obtain medical benefits from the dispensary.
2. The fact that the administration was entirely under lay control.
3. The acceptance of members upon necessarily low rates of subscription.
4. The fact that the existence of the dispensary upon the above conditions stood in the way of any betterment of local contract practice conditions.

They also pleaded privilege.

Counsel for the plaintiffs having opened the case,

Dr. Andrew St. Lawrance-Burke, one of the plaintiffs, in the course of his evidence said that he was qualified in 1895. He came to Coventry in 1907. Before that he had held various hospital posts in Dublin, and had been district medical officer and public vaccinator at Wolverhampton for six years. On May 16th, 1907, he was appointed surgeon to the Coventry Provident Dispensary. He had intended to go to Coventry before that. He began work at the dispensary on June 25th, 1907. On May 26th he received the letter of that date from Dr. Faulder White. He also received a letter from Dr. Orton on July 20th, 1907, pointing out that having entered the area of the Division he had automatically become a member of the Division, and reminding him of the previous letter. In his reply he pointed out that he had no fault to find with the provident dispensary, and considered that if some of the new institutions were conducted as well there would have been no necessity for complaints to have been made. He saw no objection to being connected with the dispensary, but in consequence of the difficulties raised he resigned his membership of the British Medical Association which he had joined in 1903. When (by request) he attended a meeting of the Executive Committee of the Coventry Division on August 21st, 1907, he said he was perfectly satisfied with his position. It had been held for many years by responsible and reputable men in Coventry—Drs. McVeagh, Hird, Davidson, and Orton. He did not think that the Executive Committee were suitable people to deal with his position.

On September 3rd, 1907, having seen a notice in the JOURNAL, he attended a meeting of the Coventry Division, when Dr. Milner Moore, the acting chairman, told him he was not a member, and he was expelled. On the following day he wrote to apologize for having intruded. He was told by Dr. Milner Moore that he had no right to be at the meeting. Subsequently he went to see the Secretary of the British Medical Association. He saw Dr. Smith Whitaker, and told him that he and Dr. Ellis, who were members of the staff of the Coventry Provident Dispensary, had come for the purpose of coming to some terms as to the method of carrying on the institute and to remove the boycott. They were favourably impressed with the way they were received, but the central executive eventually found it impossible to bring about the reforms. As regards the boycott, this prevented his having a consultant, and in consequence he had had in several cases to give up paying patients—patients who had nothing to do with the dispensary. It interfered very much with his practice, and this difficulty continued until the ban was removed in April, 1917. The boycott also gave rise to difficulties in connexion with hospitals. In particular he was refused permission in 1910 or 1911 to see a patient at the Coventry Hospital, with which Dr. Hawley, who was then chairman of the Coventry Division, was connected. He was also unable to get dentists to work with him. He had offered his services to the Coventry War Medical Committee, but they were not utilized. Dr. Snell, a member of the British Medical Association, was a member. He was in the habit of buying the BRITISH MEDICAL JOURNAL at the local bookstall, and he bought a copy of that dated April 4th, 1914, which divided the officers who secured posts at these institutes into four classes. The effect of the removal of the ban in April, 1917, pending these proceedings, was that he was able to get consultants; that he was able to send cases to dentists; and that, socially, he had been recognized by the Coventry doctors. If the British Medical Association, as the Government stated, were issuing a request to local practitioners in general practice, he did not receive any such request from the Association.

In cross-examination by Mr. McCall, witness said that he knew of the "warning notice" before he went to Coventry in 1907. Before he accepted the post at the dispensary he knew that five members of the staff had resigned because they disapproved its constitution and policy. After 1912—the year of the National Insurance Act—he thought the ban might be removed. He agreed that the medical men of Coventry and Birmingham were of good standing. As regards them and the men on the Central Council and Central Ethical Committee, he did not suggest (although it seemed like it) that they were guilty of personal spite or ill-will towards him. When he took up the position at Coventry he was aware of the objections of the Coventry Division. He also knew that medical men were in a minority on the governing committee, and that a third of the revenue went in management and expenses. The collector was paid a salary in 1907. He could not say when the payment was altered to payment by salary. Under the rules persons were only admitted to the dispensary whose apparent income was under £104 a year, but old members were allowed to stay on, and remain entitled to treatment at 1d. a week. Witness regarded that as being fair, in the interests of his profession, but he recognized that reputable members of the profession might think that to belong to an institutton so managed was derogatory for any medical man of repute. He would not agree that the dispensary sweated medical men. His income from the dispensary from 1907 to to-day was from £500 to £600 per annum. He was also allowed private practice, and was still at the dispensary and doing private practice. The medical staff were paid according to the number of patients seen each quarter. The 6 per cent. commission to the collector was mentioned in the dispensary rules of 1908.

Mr. McCall: Do not you think giving a collector 6 per cent. upon his collection sets an undesirable premium upon canvassing?—I do not think we were ever charged with canvassing.

Do not you think it does tend to set a most undesirable premium upon canvassing?—It might do so.

Is that practice which sets a premium upon the collector canvassing a practice that you approve of?—No, I do not approve of it.

Continuing, witness said he believed that was one of the objections of the Coventry Division to this dispensary. If one member of the medical profession in Coventry was guilty of what his brethren considered unethical and unprofessional conduct they were entitled to show it.

Mr. Justice McCardie: He means they are entitled to indicate it.

Mr. McCall: I used the word "show" advisedly.

Witness admitted they were entitled to show it by refusing to meet him professionally or socially.

Mr. McCall: If they did what you have admitted they have a right to do, do you suggest that they were guilty of either conspiracy or malice?

Mr. Justice McCardie: No lay witness can answer that. Dr. Burke cannot possibly know the limits of legal conduct which are permissible.

Continuing, witness repeated that medical men of repute and standing might well take the view that it was derogatory to the profession for him or any medical man to be connected with the dispensary, and that such a man would be entitled to refuse to meet him professionally and socially.

After some discussion as to whether the witness could properly say whether he charged the defendants with "malice" or "conspiracy," witness said that when he wanted a second opinion he sometimes in trivial matters applied to one of his colleagues on the dispensary. As to the alleged libel in the JOURNAL of April 4th, 1914, he did suggest that any one in Coventry knowing him and reading it would put him in the first class as being associated with the dispensary.

The learned Judge pointed out that the words related to persons who applied to secure the posts, not to those who had got them.

In re-examination, witness said that the cost of drugs at the dispensary was included in costs of management, and the whole balance of the income after payment of expenses, except £29, which went to reserve, went to the medical staff. All members of the dispensary paid a subscription. All club doctors at Coventry were paid by salary. So far as he knew, the £2 a week rule was always enforced. Several dispensary patients had paid him privately, but had kept up their dispensary contributions.

By the Court: He did not think there was anything against the honour and interests of the medical profession in continuing to be associated with the dispensary, nor did he think there was anything objectionable in his being associated with the institution.

Dr. Cornelius William Suckling, Honorary Consulting Physician to the Queen's Hospital at Birmingham, said that in February, 1914, being then a member of the British Medical Association, he saw a patient of Dr. Burke's who was dangerously

ill. Having done so he was asked to explain his conduct by the Central Division of the Birmingham Branch, and did so. It was a dying case, and he followed the rule of the Association. He got a letter from Dr. Davidson, the Secretary of the Coventry Division, which was practically a censure.

Mr. McCall objected to the letter being referred to as it was not produced, and as he was told there was no such letter.

Witness said he destroyed it. As to its contents, the writer said he was told to see the case if the case—although dying, mind you—is transferred to another doctor. He subsequently received Rule "Z."

In cross-examination he said he wrote to Dr. Burke on April 24th, 1914, saying that he considered he had to deal with canting humbugs; that he had done with the Coventry Division of the British Medical Association. Rule 26 contained this exception: "In circumstances of great urgency, affecting the life of the patient, a member may accord such professional recognition to a practitioner whom he otherwise would not meet, as the necessities of the case require." He had acted on that. He could not say whether the words "even in a dying case, mind you" were in the letter referred to in his evidence in chief, or were an interjection of his own.

Dr. David Holmes, M.B.Ed., L.R.C.S.Ed., who was examined by Mr. Schwabe, said that from 1880 to 1885 he was on the staff of the Birmingham General Dispensary, and then practised at Aston, Birmingham, for twenty years. For reasons of health he sold his practice and went to Lowestoft. In 1910 he became medical officer of a medical institute at Radstock near Bath, and in 1912 he accepted a position on the staff of the Coventry Provident Dispensary. He left Radstock because he was boycotted. He was not and never would be a member of the British Medical Association. Before taking up the post at Coventry he received a warning letter from Dr. Vaughan Pendred, in which it was stated that the boycott had been consistently and successfully enforced. He, however, found nothing derogatory in the conditions at the dispensary except that there was a notice outside the door bearing the names of the medical staff. That was removed by the dispensary authorities after the General Medical Council had been consulted.

By the Court: The dispensary had never, so far as he knew, been otherwise brought to the notice of the General Medical Council. As to lay control at the dispensary, he saw nothing wrong in that, because the medical matters were regulated by the medical committee. As to the boycott, the main thing was the difficulty of getting a consultant; it was like a solicitor not being able to consult a barrister. He also found it difficult to obtain a locumtenent, and was refused attendance at the Coventry and Warwickshire Hospital. Except for the boycott, he knew no reason for the refusal. He had also found it difficult to get patients admitted to the hospital. When the ban was removed pending this action, at the suggestion of the Lord Chief Justice, the difference was enormous. The boycott began about ten years ago. He saw the article in the BRITISH MEDICAL JOURNAL of April 4th, 1914, and took it to refer to the officers of the Coventry Dispensary. He had never been summoned by the Coventry Division to explain his conduct, nor to the Central Ethical Committee.

By the Court: Neither the Coventry doctors nor any Branch of the British Medical Association had ever announced in a concise form their reasons for the boycott so that the public might understand it.

Cross-examined, witness said he left Radstock because of a boycott. He had known of the dispute at Coventry since 1907. He agreed that a dispensary failed of its purpose if it gave medical attendance and care to those who were able to pay the ordinary cost of medical attendance in any considerable numbers. He thought it ridiculous to make it a fundamental principle for a dispensary that every medical practitioner in the district who wished so to act should be a medical officer of the dispensary, provided he conformed to the rules thereof. He saw no objection to the medical staff being in a minority on the committee. There were four out of twenty-eight in this case. A competent and qualified medical man might properly entertain the opinion that there should be a wage limit. The question of eliminating members earning more than £2 a week was never discussed in committee.

By the Court: The question upon the wage limit did not touch professional conduct in the ordinary sense, but the question of remuneration of one or more medical men. Here there was only a small number with more than £2 a week. Some of his dispensary patients used to pay him 2s. 6d. a visit, and there was no rule of the dispensary to prevent his accepting it. He believed the five medical officers had resigned from the dispensary owing to the coercion of the British Medical Association. He did not think he came within any of the four classes mentioned in the alleged libel, but he thought the defendants were referring to him when they spoke of the failures of the profession. In his opinion all the Coventry men except Dr. Harman Brown were animated by spite and ill-will towards him, although, apart from the dispensary question, he had had no quarrel with them.

In re-examination, he said that ill-will against him had been specifically expressed in a letter from Dr. Lowman to Dr. Cox where he said, "The feeling in the Division is quite unanimous, and especially against the men who had taken posts in opposition to their wishes." Practically all the other medical men in Coventry belonged to some other institution.

Mr. Justice McCardie: What is the difference between a private club and a provident institution?—A private club is where a medical man simply has books of his own and they pay to him or to his collector. That is a private medical club.

Ernest Camden Pratt, L.S.A., examined by Mr. Schwabe, said that before he came to Coventry in 1912 he had practised mainly in connexion with friendly societies. He received a letter from Dr. Pendred on his appointment to the dispensary, and he replied, saying that he thought it was conducted more to the advantage of the medical man than the general run of such institutions. He had joined the British Medical Association in 1911 because of the National Insurance Act. On June 6th, 1913, he wrote a long letter to Dr. Cox, pointing out that he considered the British Medical Association were making a mistake in the matter of the dispensary, but saying that he agreed his membership of the Association was incompatible to his then position, and offering to resign from the British Medical Association. His resignation was refused. He subsequently saw Dr. Kenderdine and refused to resign from the dispensary. On June 8th, however, having previously attended a meeting of the Coventry Division, he did say he was willing to resign at the end of the year on the ground that, though he was satisfied with the work and remuneration at the dispensary, it was detrimental to the interests of the medical men at Coventry. By that he meant financial interests. Before he took up his appointment at Coventry, Dr. Kenderdine had told him he would be boycotted, even if he took it on trial for a short period. He found nothing which he considered detrimental to his honour as a medical man in occupying the appointment at the dispensary.

In cross-examination, he admitted he knew the Coventry men objected to the dispensary before he joined it. He did not think it right that medical men should have complete control although they should take part in the management. He agreed that the medical man should have the right to choose his patients and the patients should be entitled to choose their medical attendant. He quite admitted that when he wrote the letter already referred to he thought his position was incompatible, and would not blame other medical men for taking the same view. In October, 1913, he was anxious to return to the British Medical Association. His wife had urged him on social grounds. The Association had refused to let him climb down; in fact, he resigned from the dispensary late in 1917. He did not admit that Dr. Kenderdine came to him merely as a friend, but he did say that as an old friend he desired to save him from the bad opinion of the profession. It was true that on February 4th, 1918, he wrote that he had quarrelled with his colleagues at the dispensary, and that in his opinion they had proved themselves rank outsiders, but he had since changed that view. Difficulties had arisen because the other medical officers had taken over his patients while he was away. He had not gone fully into the facts before forming an opinion, but he could not say he had ever apologized.

(To be continued.)

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE degree of Master in Surgery is now known by the initials M.Ch. instead of M.C. as heretofore, and the initials used in abbreviation for the degree of Bachelor of Surgery have correspondingly been changed from B.C. to B.Ch.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AT an ordinary comitia on July 25th, the President, Dr. Norman Moore, being in the chair, the following gentlemen, having passed the required examination, were admitted Members of the College:

Geoffrey Fourne, L.R.C.P., Francis Henry Mosse, L.R.C.P., Ffrangcon Roberts, M.D.Camb., L.R.C.P., William Willis Dalziel Thomson, M.D.Belfast, John Grattan Wilson, M.B. Lond., L.R.C.P., Cecil Denyar Wood, M.B.Oxon.

Licences to practise physic were granted to 73 candidates, and diplomas in public health were granted, in conjunction with the Royal College of Surgeons, to 6 candidates:

S. L. Baker, T. F. Brown, Gnanayudam Mangalanathan Dominick, H. Isaac, E. D. Richardson, E. L. White.

Officers were elected for the ensuing year; they included as censors Dr. Newton Pitt, Dr. F. W. Mott, F.R.S., Sir Humphry Rolleston, K.C.B., Dr. Raymond H. P. Crawfurd. Dr. T. Arnold Chaplin was elected Harveian Librarian, in succession to Dr. Norman Moore, who had held the office for many years and resigned it on his election as president. Dr. Leonard Guthrie and Dr. P. Horton-Smith were elected members of council.

A copy of the revised edition of the *Nomenclature of Diseases*, 1918, was received. The thanks of the College were presented to Dr. Leonard Guthrie for his work as secretary of the committee and editor, and he was asked to accept an honorarium of two hundred guineas.

The Moxon medal was awarded to Dr. F. W. Mott, F.R.S. On the recommendation of the adjudicators it was decided not to award the Weber-Parkes prize this year.

The following universities and medical colleges were added to the list of institutions whose graduates in medicine are admissible to the Final Examination of the Examining Board in England, under the conditions of paragraph iv, Section III, of the Regulations—namely: University of Vermont, Burlington; University of Alabama, Mobile, Ala.; Women's Medical College of Pennsylvania; Union University, Albany, N.Y.; University

of Louisville, Ky.; St. Louis University School of Medicine, St. Louis; Long Island College Hospital, Brooklyn, N.Y.; University of Pittsburgh; Medical College of State of South Carolina; Syracuse University, New York.

The following schools were recognized for instruction in chemistry, physics, and biology, or in one or other of these subjects: Leeds Grammar School, Downside College, Royal Masonic School, Bushey; Shrewsbury School, Merchant Taylor's School, Crosby; Barry Intermediate School.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary council was held on July 25th, when Sir George Makins, president, was in the chair.

Diplomas of membership were granted to 70 candidates found qualified at the recent examination.

A further donation of fifty guineas was made to the Belgian Doctors' and Pharmacists' Relief Fund.

Mr. R. Lawford Knaggs was elected a member of the Court of Examiners in Dental Surgery in the vacancy occasioned by the retirement of Mr. W. G. Spencer.

Medical News.

DR. A. LINNELL of Paulerspury has been unanimously elected chairman of the Northamptonshire Insurance Committee.

CAPTAIN MORRIS JONES, M.C., R.A.M.C., of Colwyn Bay, has been appointed to the Commission of the Peace for the county of Denbigh.

AT the instance of the Ministry of Food, arrangements have been made by the Local Government Board and the Board of Agriculture conferring on local authorities power to make rat destruction regulations, and to supervise their execution. It is proposed to rely chiefly on poisoning, and the Treasury is to contribute towards the cost, which it is believed will not be great.

OWING to a recent improvement in the situation the Ministry of Munitions of War is now in a position to release quantities of calcium carbide for public purposes on a somewhat more lenient basis. The Department therefore considers it unnecessary to continue to refer applications from medical practitioners to the British Medical Association for recommendation, and has thanked the Association for the very valuable assistance which it has rendered in this matter. Medical practitioners who experience any difficulty in obtaining supplies of calcium carbide should now communicate direct with the Controller of Non-Ferrous Material Supplies, Ministry of Munitions of War, 8, Northumberland Avenue, London, W.C.2.

AN Officers' University and Technical Training Committee has been appointed by the Boards of Agriculture and Education, the Minister of Labour, and the Minister of Pensions to advise as to what courses of education and training it may be desirable to arrange for the benefit of officers and ex-officers of his Majesty's Forces and men of like standing, particularly with a view to fitting them for suitable employment after the war; it will consider any general questions arising in connexion with such education and training, and, when necessary, will advise individual officers as to suitable courses of training. The chairman of the committee is Lieut.-General Sir Alfred Keogh, G.C.B., and among the members is Sir William J. Collins, M.P.

THE Food Controller has announced that he is prepared to grant licences for the purchase and sale of milk of greater purity than the ordinary supply at prices higher than those fixed in the milk Order for the time being in force. Two grades of this higher quality have been arranged by the Local Government Boards for England and Wales and for Scotland respectively. Grade A is milk produced under exceptionally clean and hygienic conditions from a herd free from tuberculosis, and immediately bottled in sterilized bottles on the premises where it is produced, in such manner that the lip of the bottle is entirely covered. Grade B is milk produced under specially clean conditions from a herd free from tuberculosis. In the case of Grade A the price, wholesale or retail, in excess of the maximum prices permitted by the milk Order shall not exceed 4d. per imperial quart bottle and 3d. per imperial pint bottle. The price in excess of the milk maximum prices permitted by the Order in the case of Grade B must not exceed 4d. per imperial gallon when sold retail, 3d. per imperial gallon when sold wholesale by the producer, and 3½d. when sold wholesale by any person other than the producer. A full statement of the conditions can be obtained from the Secretary, Milk Section, Ministry of Food, London County Hall, Westminster Bridge Road, S.E.1.

Letters, Notes, and Answers.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

The postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS NOTES, ETC.

INCOME TAX.

J. A. inquires as to the legal authority for claiming to have allowances for life assurance, abatement, etc., set against civil income instead of against "pay" taxable at the reduced "service" rates.

*** This is provided for specifically by Section 11 (*a*) of the Finance Act, 1917, and is continued by the current Finance Act; for the years up to and including the financial year 1916-17, the allowances had to be made from the "pay" first and the civil income next, and, as our correspondent realizes, the reversal of that rule for 1917-18 and future years carries an appreciable benefit. We may add that the rule extends even to civil *unearned* income in preference to "pay," the order for the allowance being, civil earned, civil unearned, and lastly "pay."

G. R. P. inquires as to the position of civilian medical practitioners in receipt of army pay for work on medical boards, V.A.D. hospitals, etc., with regard to the special service rates.

*** Section 30 (1) of the Finance Act of 1916 restricts the application of the special service rates of tax to "any person who has served or is serving as a member of any of the naval or military forces of the Crown, or in service of a naval or military character in connexion with the present war for which payment is made out of money provided by Parliament, or in any work abroad of the British Red Cross Society or the St. John Ambulance Association or any other body with similar objects." As regards the V.A.D. hospitals, the work referred to by our correspondent is presumably not "abroad," and so far as medical board work is concerned it would seem that the authorities regard this as of a civilian rather than of a military character, probably because it does not carry liability to military discipline.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.

DR. A. WITHERS GREEN (Wardrobe Place, E.C.) writes: For the past few weeks letters have appeared complaining of the action of the Medical Sickness, Annuity, and Life Assurance Friendly Society in deciding to withhold, after the end of 1918, the bonus from members reaching the age of 65. From inquiries at the office it can be learnt that this action has been due to war conditions and appears to be quite wise and necessary. It would be much more reasonable if members, instead of complaining in a public journal, were to obtain first-hand information from the office of their society, 300, High Holborn, London, W.C.1.

All members received the thirty-fifth report and statement of accounts before the annual meeting was held, in which, at the last paragraph, the actuary (Mr. S. G. Warner) definitely recommends that the remaining Sickness Fund surplus should be left untouched after the end of 1918, on account of the entirely exceptional circumstances brought about by the large number of war injuries and sickness which may become claims on the Sickness Fund on the return of the invalids to this country.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
Whole page	12	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.